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AMERICAN

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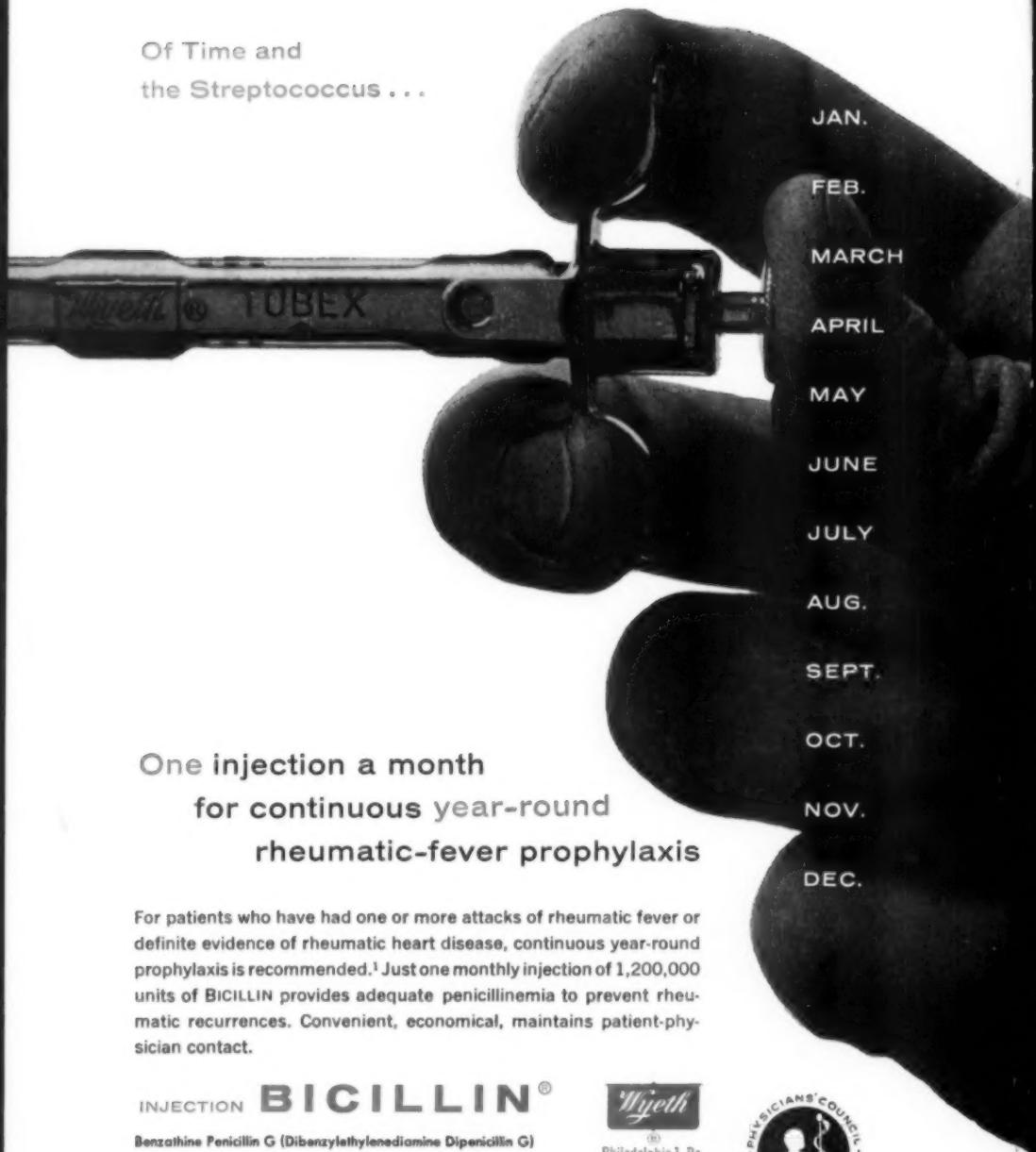
AND THE
NATION'S HEALTH



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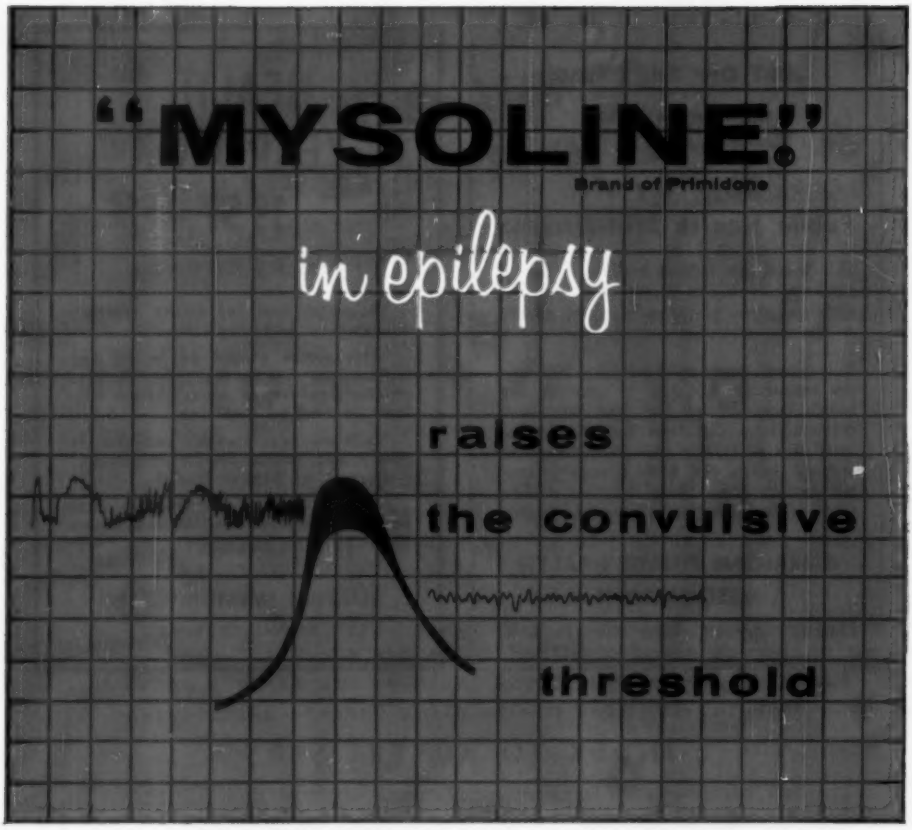

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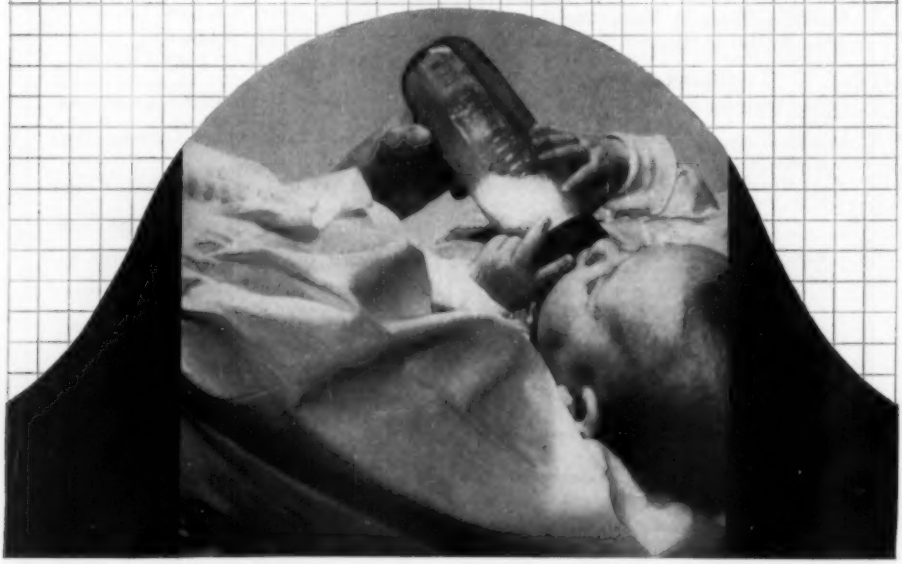

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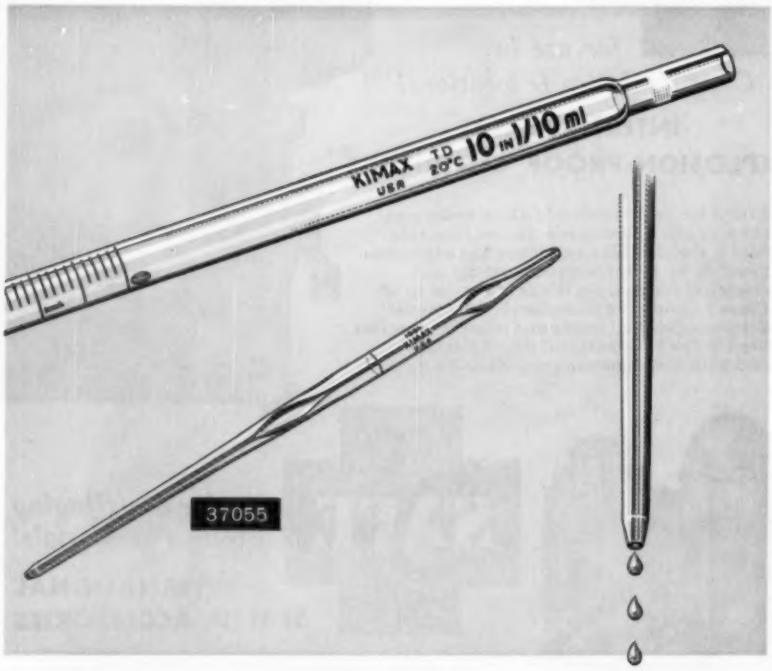

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1 Shaw, Jas. H., Caries-producing Factors: A Decade of Dental Research, J. Am. Dent. A., *55*:785 (Dec.) 1957.

2 Ludwig, T. G., and Bibby, B. G., Acid Production from Different Carbohydrate Foods in Plaque and Saliva; Further Observations Upon the Caries-Producing Potentialities of Various Foodstuffs, J. Dent. Research, *36*:56 (Feb.) 1957.

3 Bibby, B. G., Effect of Sugar Content of Foodstuffs on Their Caries-Producing Potentialities, J. Am. Dent. A., *51*:293 (Sept.) 1955.

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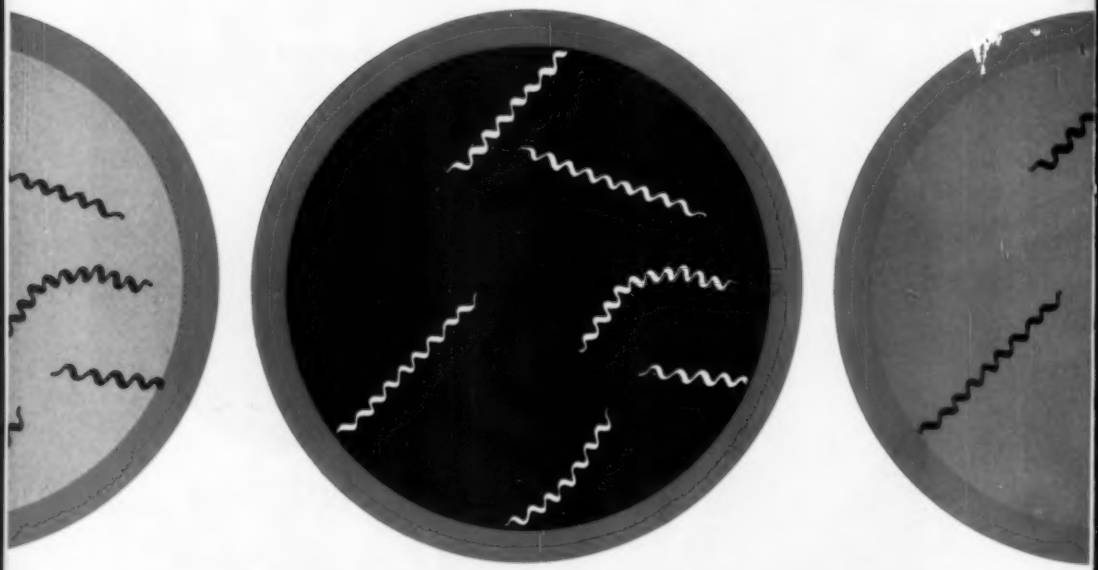

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*Cannefax, G. R., and Garson, W.: Pub. Health Rep. *72*:335, 1957.

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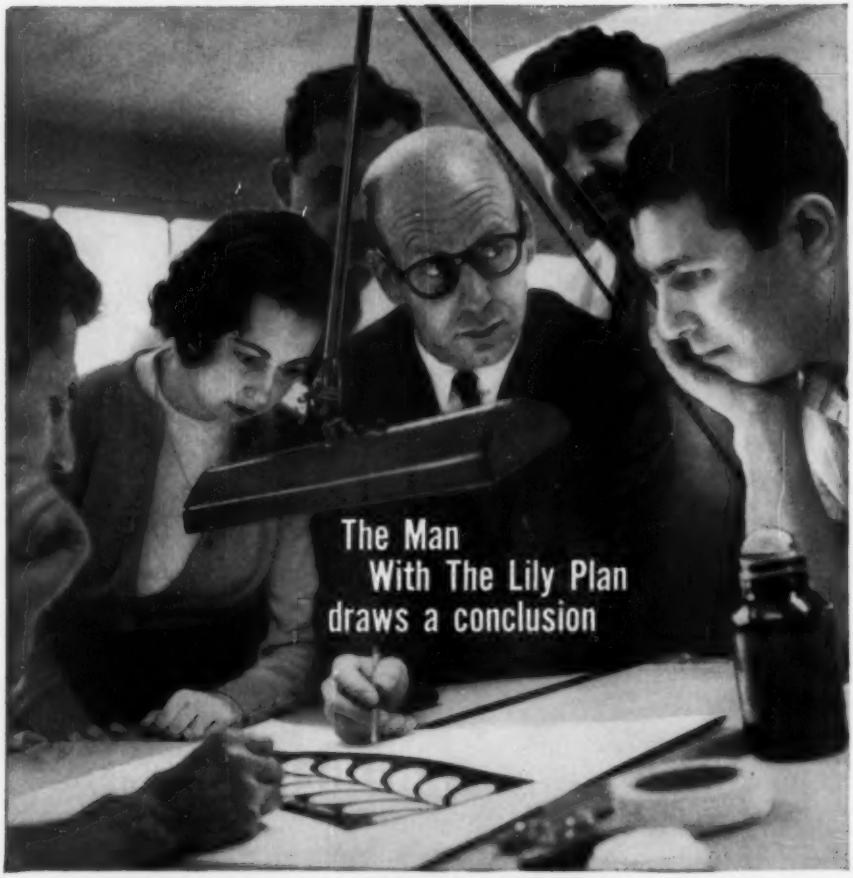

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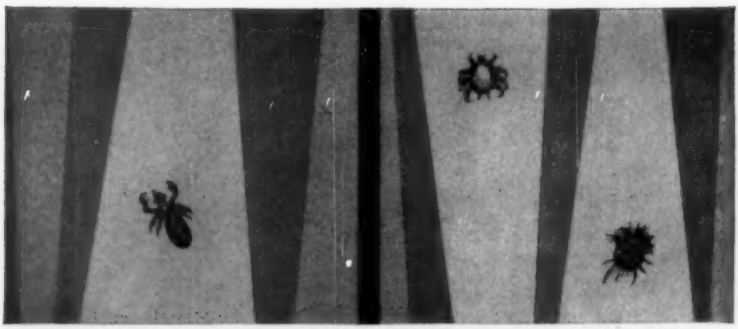

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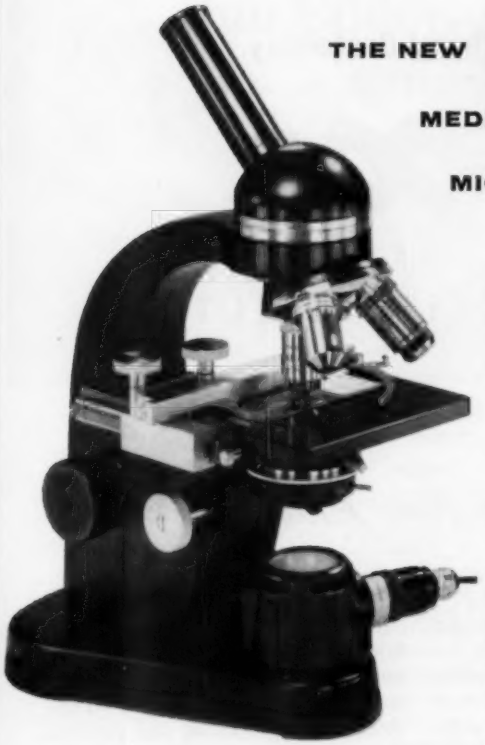

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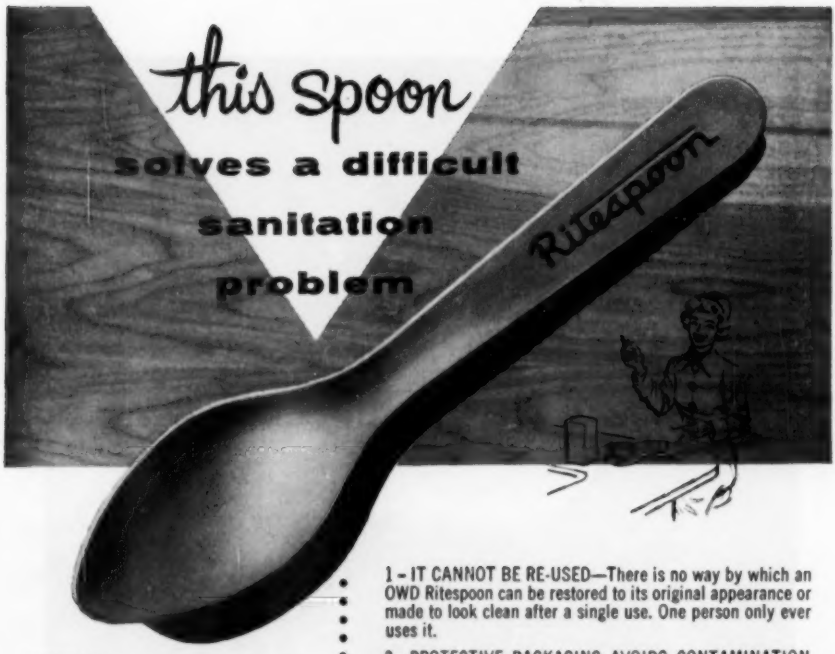

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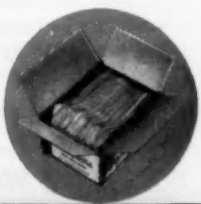

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Journal of Public Health

Interpersonal relations institutes have been used for about a decade to help public health workers to understand themselves and their relations to others. It is postulated that these efforts will help them be more effective in their work. Are they? Here is one attempt to arrive at an answer.

THE INTERPERSONAL RELATIONS INSTITUTE IN MENTAL HEALTH EDUCATION—METHOD AND EVALUATION

Hyman M. Forstenzer, M.S. in Ed., F.A.P.H.A.; Dorine Loso, R.N.; and Joseph J. Downing, M.D.

SINCE 1950, the Departments of Health and Mental Hygiene in New York State have jointly conducted eleven interpersonal relations institutes for public health personnel. In time spent by participants, faculty members and staff, and in actual dollar outlay, these institutes have been costly. Nevertheless appropriations have been made annually without objection from state fiscal authorities and there has been no lessening of interest or drop in demand. The institutes have been highly satisfying to sponsors, staff, participants, and faculty. Like many other mental health program activities, popularity has been sufficient to offset lack of definitive evaluation and to justify continuance.

Despite their popularity, it is unlikely that the institutes would have been continued if the premises on which they are based were not so strongly held and widely accepted. Briefly stated these are:

While treatment of mental illness is the responsibility of psychiatry and related clinical disciplines, the prevention of mental illness and promotion of mental health are responsibilities shared by all the helping professions.[1]

In primary prevention, some notable successes have been achieved with several mental illnesses with organic causes which are preventable. Although no such clear results have been achieved in the area of psychological causation, there does exist a set of hypotheses for mental health which can be applied by the service professions in efforts to prevent mental

illness and which can also be helpful to them in their interpersonal relations.[2]

Public health organizations are in a key position in relation to both the physical and the psychological environment to help in the prevention of mental disorders and the promotion of mental health.[3]

Public health workers need an understanding of their clients, of themselves and of the significance of their activities for individual people. They need such understanding and human relations skills for all preventive work, whether it be directed toward mental or physical illness, since many public health programs fail or succeed because of the way in which people participate in or resist them.[4]

Starting with the 1948 Berkeley Institute as a model, New York State gradually developed an institute pattern markedly different in procedures and technics. The specific objective remains the same—namely, to provide state and local public health personnel with an opportunity to explore with a group of psychiatrists the mental health implications of public health programs and the significance for these programs of interpersonal relationships within health department staffs and between staff and individuals receiving health services. A study of the Berkeley Institute report[5] and discussion with several psychiatrists who served as faculty at that institute led to some initial changes in length of time and composition of the participating public health group. Other changes were made as experience accumulated with this type of institute. This paper describes the pattern which emerged after four institutes, and which has now been used seven times with public health personnel and once with public welfare workers.

Participation in the institute is on a voluntary basis with invitations issued by the State Health Department through its director of professional training. The invitation indicates clearly that the program has the full support and interest of the state commissioner of health. It also indicates that the sponsors prefer team to individual representation from public health units. In addition to the health officer, a local health unit can send a supervising nurse, sanitarian, health educator, nutritionist, or other staff member with administrative and/or supervisory responsibilities. Team representation is favored because we believe that the effect on an organization of a learning experience shared by two or more of its members is greater and more lasting than when the experience is carried back by one individual. We try to limit the number of participants to twenty-five. In practice, sufficient invitations are sent out to obtain a beginning list of acceptances numbering slightly more than thirty. There ensues a period of vacillation and fluctuation with withdrawals, re-acceptances, last-minute illnesses and the emergence of other obligations. Meanwhile, institute staff struggle to achieve a balance among the different professions and to maintain the principle of team representation.

The institute starts with an orientation session on Sunday evening and closes on Friday afternoon with an evaluation discussion. This schedule allows five full days, with a minimum of encroachment on off-duty time and the most commonly accepted maximum time off from one's job for inservice training. Because proximity to office and home militates against continuity of attendance and full participation in unscheduled evening discussions, we try to locate the institutes in small and relatively isolated communities. These, however, must have health services of sufficient size to provide the fairly large number of health clients needed for the interviews which make up a large part of the program. Housing for participants, staff and faculty is arranged in a hotel or inn small enough to permit, or more correctly to make inevitable, contact and informal communication throughout the week and to minimize the risk of dispersal of conference personnel among other guests of the hotel.

Interview sessions are held in a health facility, rather than in the hotel, so that the setting is a familiar and secure one for the interviewees.

Faculty and staff consist of one psychiatrist for each five participants, the director of professional education for the Health Department, the director of mental health education for the Department of Mental Hygiene, and a mental health nurse consultant on the latter's staff, who is assigned to the Health Department. Each psychiatrist conducts one demonstration interview, gives one informal talk on an assigned topic, and serves as group leader each afternoon for five of the participants. Among other responsibilities, the nurse consultant works with health personnel serving the locality in which the institute is held to select from their regular clientele persons who are willing to serve as interviewees. She also has responsibility for final selections. The process of selection is worth a separate paper. One can only say here that a prime consideration is the screening out of persons with known or suspected mental disorders. At one of the early institutes it was necessary to leave a psychiatrist in the area for an extra week. Selection of interviewees had been left to the local health personnel. There were no psychiatric facilities in their area and they used the institute to get psychiatric help for some of their citizens.

The mental health educator serves as discussion leader whenever the entire group meets together. On two occasions, an additional psychiatrist replaced the educator as discussion leader. At one institute, too, a clinical psychologist served on the faculty in place of a psychiatrist. All faculty and staff members are expected to participate in the general discussions and to be available evenings throughout the week for informal sessions with one or several participants. It has not been uncommon for a one-to-one postdinner interview to grow gradually into a full conference group discussion.

To provide a focus for both the interviews and discussions, a topic is assigned for each day. In order, these are: Parent-Child Relationships; Emotional Components of Acute Illness; Emotional Components of Chronic Illness; Emotional Factors in Aging; and Emotional Factors in the Use of Authority. There is only one scheduled evening meeting and this is held on Tuesday night. It is devoted to a talk and discussion on Mental Health in Public Health.

Each day except the last opens with a demonstration interview conducted by one of the psychiatrists. The interviewee has been selected on the basis of the topic assigned for that day. For example, on the first day when the topic is Parent-Child Relationships the interviewee is a user of the child health services in the area. The interview lasts about 45 minutes and is followed by a one-hour general discussion. After a coffee break, another psychiatrist talks informally on the day's topic for 30 minutes, tying his points as much as possible to the content of the earlier interview. The next hour is used for discussion of both the talk and the interview. The afternoons are spent in small groups consisting of one psychiatrist and five participants. Each participant has an opportunity during the week to conduct one interview with the interviewees selected and scheduled in the same manner as in the morning demonstration interviews. Discussion, led by the group's psychiatrist, follows each interview. Much of what happens in the small group gets carried into the general discussion on the following morning.

The demonstration interviews in the morning are viewed through a one-way vision mirror. Each participant listens through a set of headphones. The interviewee is told at time of selection and

again just before the interview that thirty public health people will be listening in and that this is part of their training. The microphone is on the table between the two chairs and is unconcealed and unadorned. To date, the interviewees have not been told about the mirror, and not one has commented about it, despite its obtrusiveness and inappropriateness in the room setting. This lack of disclosure—concerning the mirror—has troubled many participants and faculty members. The issue is discussed with the faculty before each institute and invariably a majority favor nondisclosure.

Mirrors are not used in the afternoon interviews conducted by the participants. The furniture is arranged so that the participant-interviewer and the interviewee are separated somewhat from the others in the group. These interviews start out on a one-to-one basis, and may become a group interview at the option of the interviewer. The psychiatrist is free to intervene whenever he believes it necessary for the protection of the interviewee.

In the demonstration interviews, the interviewee's ability and willingness to forget or ignore the microphone as a symbol of the listening audience and the speed and frequency with which emotionally charged material is brought out invariably amazes the participants. Suspicion and disbelief are regularly expressed in the discussion periods. The anxiety they show over the listening-in is frequently equalled or exceeded by that of the faculty. The discussions of the first two days consistently reveal initial identification by the participants with the interviewees. By the third day, there appears fluctuation between this identification and a developing identification with the psychiatrists. The discussions also show that the participants' anxiety over the interviews is reduced as they come to recognize and believe that the interviewee is helped by the interview and as they gain confidence in the integrity of the entire group and conviction that none would improperly use information disclosed in the interview.

The critical point in the shift in identification has occurred so regularly on Wednesday night that it has become an institute phenomenon and weathervane. In at least 7 of the 11 institutes, the participants almost to a man, singly and in groups, deserted the faculty and the hotel on Wednesday night, even foregoing their prepaid dinner. Thursday's breakfasts find participants stoutly maintaining that their particular group's psychiatrist is the outstanding member of the faculty. There is staff consensus that when this phenomenon occurs the institute is a success.

The growing identification with the psychiatrist appears to be an essential ingredient of the learning process, as does the anxiety regarding the listening-in. The latter brings into the open the participants' reluctance to ask people about their life situations. This reluctance, in turn, seems to be associated with general resistance to self-examination and self-appraisal, a resistance which accounts in part for the initial tension so evident at the opening of each institute.

One hypothesis has been developed and requires further exploration in regard to the relationship between the anxiety and resistance present when the institutes open and the learning which occurs. Teaching becomes less effective in a group situation as tension and anxiety diminish among the members of the groups. A dynamic state conducive to learning exists while tension is present; a static adjustment which makes for slow or no learning occurs where the participating group is completely relaxed. At one institute a brief but sharp clash on the first day between two faculty members put the participants completely at ease. This institute was considered

by staff to be one of the poorest, although it is true that other possible reasons for failure were noted. If the tension decreases too rapidly, the stimulus of the institute setting is destroyed, the participants' prepared defenses come out, are reinforced by the defenses of others, and group and individual attitudes remain unchanged. If they are never relaxed, there is no chance for spontaneous informal relationships to develop, the participants identify only with the public health clients who were interviewed, and they leave with many of their uncertainties and hesitancies about engaging in psychologically oriented public health work reinforced. But if the tension falls steadily over the week, reaching its lowest point on the very last day, then each session is a rich learning experience. The total institute then results in invigoration, an increase in self-respect and enhanced respect for all the other people at the institute, less need for defenses, and a sensation of having worked intensively for long hours with great accomplishment and practically no fatigue.

With so much time, money, and energy invested in this specialized type of mental health education, one is curious about the results. The participants seem convinced that they had enjoyed a unique interpersonal experience. Is this conviction reflected in their subsequent work relationships? Can the change, if any, be evaluated?

Reported anecdotal evaluation from institute participants is favorable. They tell us that their approach to fellow workers and to clients is easier, more pleasant, and more rewarding. Follow-up interviews by the mental health nurse consultant confirmed these favorable statements. Several have written to the State Health Department's director of professional training asking for an opportunity to participate in another institute and expressing confidence that even greater personal gains would follow. A county health commissioner, more than a year after his participation in one of the institutes, asked for and obtained an institute for his supervisory personnel. A district health officer, three years after one of the institutes, commented that his original negative impressions had been replaced by a conviction that he had profited enormously from the experience.

Trying to understand more clearly and objectively the changes in attitudes, working relationships and technics resulting from the institutes, the Mental Health Research Unit of the Department of Mental Hygiene undertook to evaluate the institutes through objective psychological tests. For the convenience of the researchers, an institute in Syracuse, N. Y., was selected to be evaluated first. It turned out to be somewhat atypical. Department of Public Welfare personnel participated rather than public health workers. Furthermore, welfare department casework supervisors from only one county (Onondaga) participated in an institute given in their home city (Syracuse). Previous experience suggested certain disadvantages in such "hometown" institutes: pre-existing close personal and working relationships; the necessity for returning each evening to routine home living; limiting the institute to a working hours schedule; and the use of local clients known to the caseworkers. All were thought to attenuate or retard the optimal development of the characteristic interpersonal relationship. This opinion was confirmed by the observations of psychiatrists in this institute who had previously participated in others.

During the evaluation planning, a review of previous attempts at the psychological evaluation of mental health education programs was of little help. Therefore, a test battery was devised to measure changes in the following areas:

1. Attitudes toward clients

2. Sensitivity to clients' problems
3. Over-all perspective on interpersonal dynamics
4. Personality dynamics of the participants themselves.

The test battery was given the week before the institute, the week following, and six months after the institute. A comparison group, consisting of all caseworkers who did not participate in the institute, was tested at the same time as the experimental group who attended the institute. Since institute attendance was voluntary, the two groups cannot be considered random samples, and group changes as measured by the psychological tests were not necessarily due to the institute. However, at the time of initial testing no statistically significant differences were found between the two groups.

The individual tests will not be discussed here, as they will be reported elsewhere. In summary, it was found that no lasting changes occurred in the comparison group. The experimental group showed certain statistically significant changes between successive test administrations. Interesting changes in personality dynamics were found. However, the immediate post-institute testing showed certain temporary changes in the experimental group. At this time, the group was significantly less able to perceive interpersonal relationship, as measured by a sample caseworker. Also the group was temporarily or easily swayed by authoritative statements. These changes had vanished at the six-month retest.

A permanent greater self-assertiveness, expressed through outgoing, self-confident behavior was found in members of the experimental group. They seemed to feel freer to express their underlying feelings in a manner which could be characterized as self-assertive and showing independent ability to judge and criticize. Less fear was found when they put themselves forward as individuals in a group, expressing and exhibiting their own ideas and feelings. No other statistically significant changes in personality were shown.

In the areas of sensitivity and attitudes toward clients' problems, the observed changes were consistent with those found in personality dynamics. The institute appeared to have the immediate effect of dulling the clinical discriminatory senses of the participants to the extent that they become temporarily less acute in picking out meaningful material from case histories. After six months a second change returned them to their pre-institute acuity.

The over-all perspective on interpersonal dynamics did not change. This area was tested in terms of knowledge about and conscious understanding of personality factors. This finding was expected, as the institute was directed toward changing attitudes rather than providing information.

The participants were asked to give their opinions of the institute. A number expressed disappointment that so little direct teaching or information was provided. On the whole, the written evaluations of about one-half of the participants expressed specific gains, and the remainder rather diffuse, platitudinous appreciation. Criticism was directed mostly toward the general planning and structure of the institute, particularly the interviews.

In summary, this institute seems to have jarred the participants out of their accustomed ways of thinking and feeling, producing some intellectual confusion and uncertainty immediately following the experience. At the same time, they became more sure of themselves, readier to assert their individual opinion rather than hide in group anonymity. The six months follow-up showed that the intellectual confusion and uncertainty had subsided, while their greater self-confidence remained. Our assumption that these changes were in a favor-

able direction seems supported by the participants' administrative superiors. They reported a general change toward increased self-confidence and capacity to accept responsibility.

These general findings should be further investigated in subsequent institutes for public health personnel. It is our plan to do this as a second stage of this investigation.

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Mr. Forstenzer is director, Community Mental Health Services, New York State Department of Mental Hygiene, Albany, N. Y.; Miss Loso is mental health nurse consultant, Public Health Service, Denver, Colo.; and Dr. Downing is acting director, Mental Health Research Unit, New York State Department of Mental Hygiene, Syracuse, N. Y.

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Minneapolis Events Highlight WHO

A number of events in Minneapolis contributed to and exploited the 11th World Health Assembly meeting there. Most extensive of these was a series of two seminars daily, or study courses, on the WHO, in which members of WHO's technical staff took part. Those invited were physicians, medical students, social workers, public health officials, and others, chiefly from the Minneapolis area.

Two days before the Assembly's opening Minneapolis dedicated its new, modern, six-story health center. Surgeon-General Leroy E. Burney gave the dedication address and Howard A. Rusk, M.D., spoke at the dedication banquet. A series of open houses was held for professional, civic, and community groups. St. Paul had also recently opened its new health center, one of four in the state.

The 105th annual meeting of the Minnesota State Medical Association, held in the city just previous to the Assembly, devoted a special session to WHO's objectives, activities, and accomplishments. Congressman Walter H. Judd, M.D., presided and speakers were WHO Director General M. G. Candau, M.D., Surgeon-General Leroy E. Burney, and Charles W. Mayo, M.D., of the Mayo Clinic.

Brock Chisholm, M.D., first WHO Director General, addressed the convention banquet of the United World Federalists meeting in Minneapolis May 22–25.

Today, more than ever, there is an increased need for bacteriologic diagnosis and monitoring of treatment in tuberculosis. The studies presented in this paper deal with methods to achieve these aims in a routine bacteriology laboratory at a reasonable cost.

BACTERIOLOGY OF TUBERCULOSIS: LABORATORY METHODS

Gardner Middlebrook, M.D., and Maurice L. Cohn, Ph.D.

IT MIGHT seem paradoxical, at first thought, that the bacteriological aspects of tuberculosis should become more important as more effective means of treatment for the disease become available. This was not the case with lobar pneumonia or β-streptococcus infection when sulfonamides, and later penicillin, became available. Failure to recognize that this is the case in tuberculosis has resulted in a prolonged lag in providing the additional facilities and personnel which the increased need for bacteriologic diagnosis and monitoring of treatment necessarily entails.

Before the antimicrobial drug era it was roentgenographic analysis and monitoring by the clinician-radiologist team which played the dominant role in this field. The clinician-bacteriologist team played a very minor role. This is illustrated by the fact that the limit of responsibility of the bacteriologist was to provide an answer to a very simple question: "Are there, or are there not, any acid-fast bacilli in the excretions of this patient?" Only rarely was there resort to culture or animal inoculation. This was considered too sophisticated and many patients had their excreta tested only once during the course of their entire period of evaluation and treatment—in order to provide a definitive bacteriologic diagnosis of tuberculosis.

This attitude, this subordination of the microbiologic to the roentgenographic aspects of tuberculous infection and disease, is well illustrated by the widespread tendency of many authorities to evaluate the results of antimicrobial chemotherapy, not in terms of the bacteriologic response, but in terms of changes in the chest x-ray. The following quotation from one authority will illustrate this point: "The objective in the drug treatment of pulmonary tuberculosis is to achieve as much resolution of the reversible components of the disease as possible." It seems almost as if it has been forgotten that tuberculosis is an infectious disease and, thus, that the study of the parasites involved is just as important as the study of the host and his responses.

My experience suggests that there is, indeed, "something rotten in Denmark." There is much evidence that the clinical-bacteriologic investigation of tuberculous patients in this country today is pitifully inadequate. I shall cite only one example. During the past four years some 22 patients have been admitted to the National Jewish Hospital with a roentgenographic diagnosis of pulmonary tuberculosis and a positive sputum. These patients were excreting

"yellow bacilli," the photochromogenic organisms first described by Buehler and Pollack.[1] However, one-half of them were admitted before any bacteriologic studies, except sputum smears, had been performed in the communities across the country from which they came. The other half had had sputum cultures which were simply reported as positive for acid-fast bacilli. Thus, in not one case did the application for admission to the hospital include any indication of the fact that these patients were excreting atypical tubercle bacilli which are almost as easy to distinguish from human type tubercle bacilli as streptococci are from staphylococci.

The slow growth and multiplication of tubercle bacilli puts a real burden on any laboratory responsible for providing diagnostic bacteriologic services. If the testing of populations of tubercle bacilli for drug susceptibility is also a responsibility of a clinical or public health laboratory, additional problems are posed. Providing such services at a reasonable cost, with equipment and personnel integrated into the general microbiology team of a laboratory, presents a challenge. The requirements are clear:

1. A uniform, standard method for handling and treating specimens.
2. Means for rapid cultivation of tubercle bacilli from small, as well as large, inocula.
3. A routine which involves minimal expenditure of time in examination of cultures.
4. A minimum period of incubation of cultures which permits, at the same time, the most economical utilization of incubator space and a minimum yield of false-negative cultures.
5. A technic for performing direct drug-susceptibility tests which gives results that are clinically meaningful.

During the past five years my associates and I have been evaluating and modifying the many technics of collection, homogenization, decontamination, and culture of sputum and other pathologic materials in an effort to improve and, if possible, to simplify the bacteriologic diagnostic methods in tuberculosis. In addition, we have been studying technics of testing drug susceptibility in order to define a method which would be clinically useful and, at the same time, sufficiently practical to permit a wider application of drug susceptibility testing to populations of tubercle bacilli in hospital and public health laboratories. This report describes and discusses the results of some of these studies.

Materials and Methods

Culture Media—The following culture media were employed in the study reported here: Jensen's modification of Lowenstein's medium (L-J medium), an oleic acid-albumin agar medium prepared for routine clinical use in our own laboratories (7H-10 medium), and a slightly modified oleic acid-albumin agar medium available commercially (7H-9 medium).

L-J Medium—This medium was purchased commercially, already tubed and ready to inoculate, from the Difco Laboratories, Detroit, Mich., Control Numbers: 429902, 432892, 431273, 432220, and 427506. The tubes were stored at 4° C and used within four weeks after receipt.

7H-10 Medium—This medium was made up from stock materials, as follows:

Base Solids

$MgSO_4 \cdot H_2O$	0.5 gm
Fe ammonium citrate	0.4 "
Na_3 citrate $\cdot 2H_2O$	4.0 "
Ammonium sulphate	5.0 "
L-glutamic acid	5.0 "
Na_2HPO_4 (anhydrous)	15.0 "
KH_2PO_4 (anhydrous)	15.0 "
	45 gm

Store at room temperature after mixing and indicate on label that 0.45 gm will make up to 100 ml with d.w. at pH 6.6, if 1.5 gm Baltimore Biological Laboratories agar is used per 100 ml.

Heat-labile solution (filter-sterilized), one

tube (13.5 ml) to be added to each 100 ml of above agar base after autoclaving agar base:

OA complex (5 per cent)	10.0 ml
Glycerol	0.5 "
50 per cent glucose	0.4 "
Pyridoxine HCl 100 μg/ml Biotin 50 μg/ml +	1.0 "
Malachite green 100 μg/ml	1.0 "
Catalase (technical) 1,000 μg/ml	0.3 "
	13.5 ml

This medium was poured into quadrants of Felsen plates, after addition of drugs as indicated. All drugs are added aseptically to the culture medium immediately before pouring. Approximately 6 ml of medium were poured into each quadrant of a Felsen dish.

7H-9 Medium—The ingredients for making this medium were obtained from the Difco Laboratories as "Bacto, Middlebrook 7H-9 Agar A" (Control No. 433929) and the OADC enrichment (Control No. 433199).

This medium was prepared and dispensed (as recommended on the label) into tubes with plastic interlined caps identical with the tubes employed for the Lowenstein-Jensen medium. Culture media were inoculated and handled as follows:

1. 0.1–0.2 ml of inocula were used for each tube of medium or quadrant of Felsen plate.
2. The quadrant plates were placed in polyethylene plastic bags (permeable to CO_2), right side up, and incubated in a chamber to which CO_2 was added daily, after each opening, to a final concentration of 2–5 per cent.
3. The tubes were permitted to remain in a slanted position with loose caps for 48 hours in the same CO_2 chamber. The caps were tightened and the tubes were further incubated in the upright position without disturbance and examined at the indicated intervals.
4. The incubation temperature was 35±1° C.

Methods for Preparing Pathologic Materials for Smear and Culture

The procedure followed in the study provides for the collection, homogenization, and decontamination in one tube of each sputum specimen, without transfer.

Method I

1. Sputum was collected in an amount not exceeding 10 ml directly into a sterile, wide-mouth, 50 ml plastic centrifuge tube (autoclavable polyethylene, No. 222, Ivan Sorvall, Inc., Norwalk, Conn.).
2. Add 1–2 ml of a solution of "activated" Difco "pangestin" [2] and 1 ml 10 per cent $NaHCO_3$.
3. Disperse mixture with a "tongue vibrator." [2]
4. Incubate in water bath (40° C) for 30 minutes; add another 1 ml of activated pangestin; continue incubation for 30 minutes more; add distilled water to final volume 40–45 ml; centrifuge at 2,500 rpm for 30 minutes and discard supernate.
5. Smear portion of sediment; apply acid-fast stain; and examine for acid-fast bacilli.*
6. Suspend sediment in about 15 ml of sterile (autoclaved) 0.1 M trisodium citrate and then add about 15 ml of 0.5 N NaOH. Incubate at 40° C for 20 minutes; centrifuge at 2,500 rpm for 30 minutes. Discard supernate and immediately suspend sediment with disposable capillary pipette in about 1 ml of a sterile solution containing 2.5 per cent bovine albumin, 0.002 per cent bromthymol blue, and 0.001 per cent lima bean trypsin inhibitor (Nutritional Biochemicals Corp., Cleveland 28, Ohio). Add 1 N HCl dropwise to neutralize.
7. Divide specimens into three groups according to results of stained smears:

I Containing < 1 AFB per oil immersion field.

II Containing 1–10 AFB per oil immersion field.

III Containing > 10 AFB per oil immersion field.

8. Inoculate specimens of Class I (0.2 ml per tube slant or per quadrant of Felsen plate) undiluted and at 10^{-1} dilution. For Class II inoculate 10^{-1} and 10^{-2} dilutions. For Class III, 10^{-2} and 10^{-3}. Make all dilutions in sterile distilled water. (Precise dilution technics are unnecessary.)

Method II

Methods I and II, the classical methods using sodium hydroxide, were compared on seven bacteriologically positive sputum specimens. This comparison was performed as follows:

1. Approximately 10 ml of sputum was collected from each of seven known positive patients.
2. Each sputum was homogenized with the

* Continue further with alkali treatment while smears are being stained and examined.

"tongue vibrator" until it was possible to pipette the sputum. Then each homogenized specimen was divided into two equal aliquots.

3. One aliquot was treated as described above in Method I, from steps 2 through 8. It was then inoculated onto 7H-10 medium in 100 mm Petri dishes on a manually rotated turntable with the use of a glass spreader. Two Petri dishes were inoculated with each of the two dilutions of concentrate.

4. To the other aliquot an equal volume of 1N NaOH was added. This was then manually shaken at frequent intervals over a period of 30 minutes at 37° C. The contents of the tube were centrifuged at 2,500 rpm for 30 minutes. The sediment was suspended in about 40 ml of 0.1 M trisodium citrate. The tube was centrifuged again at 2,500 rpm for 30 minutes; the supernate was discarded and the sediment was suspended and diluted for inoculation as described in steps No. 6, 7, and 8 of Method I. The suspensions so obtained were then inoculated onto 7H-10 medium in Petri dishes, as described previously, and incubated in plastic bags under 2–5 per cent CO_2.

Sources of Specimens Obtained—The specimens for Studies 1 and 3 were obtained from the patients at the National Jewish Hospital. The seven specimens in Study 1 were selected at random as smear-positive for acid-fast bacilli from the routine clinical tuberculosis bacteriology laboratory. The 100 patients in Study 3 constituted all bacteriologically documented cases of pulmonary tuberculosis consecutively admitted to the National Jewish Hospital over a seven-month period (October 16, 1956, to May 16, 1957). Seven hundred and sixty-six specimens were obtained from these 100 patients and included without selection. All specimens from these 100 patients were submitted to the clinical laboratory for examination on or before June 16, 1957. A minimum of four specimens was obtained from each subject, except three who yielded only three specimens apiece (because of the late date of admission to the hospital). The first two or three specimens were obtained from each patient within one week after admission with a presumptive diagnosis of pulmonary tuberculosis. The remaining specimens were obtained at fortnightly or monthly intervals thereafter.

During the same period of this study a total of more than 3,600 specimens was submitted and studied in the same fashion from these and other subjects. Thus, the patients under consideration in this study yielded approximately 21 per cent of the total number of specimens examined.

The 100 specimens from as many individuals were obtained for Study 2 from patients at the National Jewish Hospital and from patients at Colorado General, Fitzsimons Army, and Denver General Hospitals through the courtesy of Dr. Roger Mitchell, Orman Weiser, and Dr. Wen Wang, respectively.

Results

Study 1—The results of Study 1 are presented in Table 1. It is evident that Method I is superior to Method II in terms of the numbers of bacterial units yielding colonies. Method I yields two to 16 times as many colonies as Method II, with the "yellow bacilli" being least affected by stronger alkali treatment.

Study 2—One hundred patients, who had recently had bacteriologically positive sputum cultures for tubercle bacilli, each submitted one specimen for culture on three different media: 7H-10 medium in one quadrant of a Felsen dish, L-J medium in the form of a slant, and the Difco 7H-9 medium in the form of a slant. Equal aliquots of each of two dilutions of the sputum concentrates (diluted according to the average number of acid-fast rods per oil immersion field of the smear of the concentrate) were inoculated onto these three different media and incubated as described under Materials and Methods. The Felsen plates were read and discarded at the end of three weeks' incubation in accordance with the routine practice of our clinical laboratories. The tubes of

Table 1—Digestion and Decontamination—Study 1

Patient	Smear*	Dilution Planted	Method I		Method II	
L.A.D.	10/50F	10†	++++	++++	60	75
		10^{-1}	97	108	4	8
F.B.	2/F	10^{-1}	++++	++++	++++	C
		10^{-2}	399	516	113	115
R.Y.	3/50F	10†	+++‡	+++	++	++
		10^{-1}	48	42	16	20
O.R.	10/50F	10†	++++M	++++M	++M	++M
		10^{-1}	+++M	+++M	+M	+M
G.W.	7/F	10^{-1}	+++	+++	++	++
		10^{-2}	55	54	9	8
H.W.	10/50F	10†	++++	++++	++++	++++
		10^{-1}	299	334	81	71
M.P.	5/50F	10†	175	174	37	20
		10^{-1}	28	17	6	0

* Smear results in terms of average number of acid-fast rods per oil immersion field.
† = No growth; ++ = > 50, < 200 colonies; +++ = > 200, < 500 colonies; ++++ = innumerable, M = microcolonies. Numbers indicate actual colony counts per plate.
‡ "Yellow bacilli" (photochromogenic atypical tubercle bacilli).
C = Contaminated.

the other two media studied were read at three, four, five, and six weeks after inoculation.

Thirteen of the 100 patients yielded cultures which were negative on smear and on culture on all media. Twenty-seven of the 86 specimens yielding positive cultures had negative concentrate smears. Only one patient yielded a positive smear which was culture-negative on all media; although this patient had previously been positive on both smear and culture, two specimens obtained immediately before the one studied here were negative on both smear and culture and all subsequent sputum specimens have also been completely negative. Three months before submitting this specimen, this patient had been initiated on intensive combined drug therapy (isoniazid and streptomycin), after it had been determined that the bacterial population which she was excreting was susceptible to both of these drugs.* It seems fair to assume that the acid-fast rods seen on the concentrate smear from this specimen were drug-sterilized tubercle bacilli.

Some of the results of this study are presented in Table 2. It should be noted that in all except one of the five instances where growth occurred on one medium and not on the other, the discrepancy is clearly attributable to the very small numbers of tubercle bacilli in the specimens, and thus to chance distribution. However, while only 77 of the specimens (90 per cent of specimens positive by culture on any medium at any time) yielded colonies detectable at three weeks

* At the National Jewish Hospital populations of tubercle bacilli are considered to be susceptible to streptomycin and isoniazid if, on direct testing on 7H-10 solid medium, less than 1 per cent of the numbers of organisms yielding colonies on the control can grow on the same culture medium containing either 0.2 μg of isoniazid per milliliter or 2.0 μg of streptomycin per milliliter.

Table 2—Comparison of 7H-10 (Felsen Plate) Medium and Lowenstein-Jensen (Tube) Medium —Study 2

A. General Analysis of Specimens	
Total number of specimens (patients)	100
Total number of positives	86
Total number of negatives	14
Total number of contaminated	0*
B. Comparison of Growth on Different Media	
Positive 7H-10, positive L-J	80†
Positive 7H-10, negative L-J	3‡
Negative 7H-10, positive L-J	2**
Total positives, 7H-10	83
Total positives, L-J	82

N.B. 7H-10 incubated for only three weeks and L-J, six weeks.

* One specimen contaminated on both tubes of L-J medium only.

† In four of these instances no growth was detected on L-J medium at three weeks.

‡ One of these specimens was negative on L-J because of contamination; in one instance there were only two colonies on the 7H-10 medium; in the third instance there was +++ growth (undiluted inoculum) on the 7H-10 and no growth on the L-J.

** In both of these instances only one colony grew on the L-J medium.

on the L-J medium, 83 of the specimens (97 per cent of specimens positive by culture on any medium at any time) yielded colonies on the 7H-10 medium in the same period of time.

The L-J medium and the 7H-10 medium were not significantly different with respect to contamination. Contamination, such as to obscure growth to any degree, occurred on only six tubes of L-J medium (3 per cent) and on only three Felsen plates (1.5 per cent).

Table 3 presents the results obtained in the same study on comparing the amount of growth on the 7H-10 medium, the L-J medium, and the commercially available Difco 7H-9 medium. It is evident that the amount of growth is greatest on the 7H-10 medium under these conditions in Felsen dishes even when the results at three weeks are compared to the results with the other two media after six weeks of incubation.

Study 3—Some of the experiences and results of the bacteriologic study of sputum specimens submitted during a seven-month period from 100 patients consecutively admitted to hospital with bacteriologically documented pulmonary tuberculosis are summarized in Tables 4 and 5.

It should be pointed out that, as a result of therapeutic measures, 47 of these 100 patients became smear- and culture-negative during the course of this study; this accounts, of course, for most of the 266 specimens which were negative both on smear and on culture.

The very low incidence (1.7 per cent) of positive smear specimens which yielded no growth on culture is noteworthy. Probably this would be increased if stained smears were searched more diligently in our laboratories. In-

Table 3—Comparison of Amounts of Growth on Three Different Media

Medium	Dilution	Time (Weeks) 3	4	5	6
7H-10 (Felsen)	First	264*	...	...	...
	Second	211	...	...	...
L-J (tube)	First	199	218	228	229
	Second	147	166	171	171
7H-9 (tube)	First	199	216	240	247
	Second	137	157	172	177

* The numerical value given is the sum of amounts of growth in terms of numbers of colonies detectable on each culture dish or tube: 1–50 colonies = 1; 50–100 colonies = 2; 100–200 colonies = 3; > 200 colonies = 4.

Table 4—TB Bacteriologic Results (Routine Clinical Laboratory) on 766 Specimens from 100 Patients with Pulmonary Tuberculosis, Consecutively Admitted to the National Jewish Hospital and Studied Over a Period of Eight Months—Study 3 Analysis of Smear and Culture Results by Specimens (766)

	Positive Smear (303)	Negative Smear (463)
Positive culture (487)	295*	192†
Negative culture (271)	5‡ (1.7 per cent)	266
Contaminated (8)	3 (1.0 per cent)	5 (1.1 per cent)

* Two hundred and sixty-six (90 per cent) of these specimens yielded at least 100 colonies on culture.
† Fifty-two (27 per cent) of these specimens yielded at least 100 colonies on culture.
‡ These instances are analyzed in the text.

asmuch as every specimen is submitted to both smear and culture it would seem to be a waste of personnel time to exert a greater effort than to examine 200 fields for each specimen. In any case the five smear-positive, culture-negative specimens deserve special comment. Perhaps one of these should not have been included, because the culture plates for this specimen were lost due to a laboratory accident. Three of the specimens were derived from patients previously excreting large populations of drug-susceptible tubercle bacilli while under intensive combined drug chemotherapy. All subsequent specimens from these individuals were negative both on smear and on culture. Thus, the acid-fast bacilli seen on smear were probably drug-sterilized before secretion into the sputum. The one remaining specimen of these five was unexplainably negative—a valid false-negative.

Some additional observations are worth reporting here:

1. Ninety per cent of the smear-positive specimens yielded at least 100 colonies on the control quadrant of a Felsen dish, despite the fact that many of the concentrates were diluted 100- or 1,000-fold for inoculation.

2. From every patient at least one positive culture was obtained from specimens delivered to the laboratory during the first week of hospitalization. These positive cultures were obtained from at least one of the first two or three specimens submitted for study.

3. In 95 per cent of subjects, when one positive smear was obtained, more than two positive cultures could be anticipated.

4. Two of these 100 subjects were excreting pure populations of "yellow bacilli" which were easily recognized on the first positive culture by their very strong catalase activity

Table 5—Analysis of Smear and Culture Results by Subjects (100)

Smear Always Negative	One Positive Smear	Two Positive Smears	>Two Positive Smears	Total
28	9	9	54	100
No Positive Culture	**One Positive Culture**	**Two Positive Cultures**	**>Two Positive Cultures**	**Total**
..	7*	8†	85‡	100

* Four to 10 specimens examined per subject; only two subjects were ever smear-positive.
† Three to nine specimens examined per subject; only three subjects were ever smear-positive.
‡ Eighteen (21 per cent) of these subjects never yielded a specimen with a positive-smear.

and their colonies' tendency to turn yellow on exposure to light for 18 hours or less.[2-5]

Drug Susceptibility Studies—The routine procedure of bacteriologic analysis of pathologic materials at this institution (80 per cent of patients with a diagnosis of tuberculosis) includes direct drug-susceptibility testing which is permitted by the use of the quadrant Felsen dishes and the catalase testing of all positive cultures.

Each Felsen dish contains four quadrants, one of which contains no drug. The other three quadrants contain drugs, added aseptically to the agar medium before pouring, in final concentrations of: 0.2 mcg isoniazid/ml, 2.0 mcg streptomycin/ml, and 2.0 mcg para-aminosalicylic acid/ml. As a result of the studies of Rist, Mitchison, and Steenken and of our own correlations between in vitro drug-susceptibility results and clinical response to treatment at the National Jewish Hospital, the specific concentrations of these three drugs for the oleic acid-albumin agar type of culture medium have been established as the most important concentrations in terms of clinical significance. Evidence for these choices has been presented elsewhere.[6-8]

Theoretical objections have been raised to the performance of direct drug-susceptibility tests on pathologic materials for the routine clinical laboratory; indirect tests are much more commonly used. The principal objection has been that specimens yielding less than 100, or so, colonies on a control medium containing no drug fail to disclose a small but possibly clinically significant proportion of drug-resistant mutants. However, the performance of drug-susceptibility tests by indirect methods on subcultures of less than 100 colonies can just as validly be objected to on the basis that such a small sample can hardly be considered even remotely representative of the total microbial population in the patient's active lesion(s). Furthermore, from a clinical standpoint it is just as important, if not more so, to identify a population as containing a high proportion of drug-susceptible mutants as it is to be able to state exactly what small proportion of a large population consists of drug-resistant mutants. In other words, rapid identification of patients who are excreting a high population of drug-resistant mutants is just as important as identifying those patients who are excreting populations containing a very small proportion of drug-resistant mutants. And rapid identification of such individuals is usually accomplished by direct susceptibility tests, even on smear-negative specimens which yield less than 100 colonies.

Certainly, our experience with smear-positive specimens, 90 per cent of which yield more than 100 colonies on the quadrant without drugs, shows that direct drug-susceptibility tests may be expected to give clinically important information in the great majority of patients within 21 days. With the bacteriologic methods described here, 65 per cent of all culture-positive specimens may be expected to yield satisfactory direct drug-susceptibility data, because this is the percentage of all positive cultures which yield more than 100 colonies.

The information to be gained from the performance of catalase tests has already been emphasized by many investigators. Suffice it to reiterate here that it is quite useful for the differentiation of types of mycobacteria and often provides corroborative evidence in relation to isoniazid-susceptibility or resistance.

It may also be of interest to relate that integration of bacteriologic and clinical data, including drug-susceptibility test results and history, provided information which was satisfactory for defining what drugs might fairly be anticipated to be effective or ineffective in treatment of 98 of the 100 patients in Study 3. When only the bacteriologic results were considered the data were

satisfactory for at least 90 per cent of these patients, many of whom were excreting high proportions of drug-resistant mutants on admission to the hospital.

Discussion

The results of the studies presented here show that it is possible in a routine bacteriology laboratory to provide data which are satisfactory for diagnostic purposes in nearly all cases of pulmonary tuberculosis within one month, on investigation of at least three properly collected specimens of sputum from each subject. One can conclude that, if direct drug-susceptibility tests are performed on specimens which are smear-positive for acid-fast bacilli, approximately 90 per cent of such tests may be expected to yield satisfactory drug-susceptibility test results within three weeks.

Only in a laboratory where a high percentage (more than 25 per cent) of all specimens are positive on smear or culture for acid-fast bacilli would it seem profitable to employ the Felsen quadrant plate method as routine for all cultures. For public health laboratories, in general, Petri dishes, incubated in polyethylene plastic bags under 2–5 per cent CO_2 in air, can be recommended for all specimens which are not positive for acid-fast bacilli on smear. The Felsen dish technic should be reserved for smear-positive specimens only.

The results of this study confirm previous observations that CO_2 is strikingly stimulating to the multiplication of tubercle bacilli on artificial media.[2, 9, 10] It seems fair to attribute the rapid growth which permits at least 95 per cent of strains of tubercle bacilli from different patients to yield positive cultures within three weeks to the favorable effects of CO_2. Inasmuch as the concentration of CO_2 is not critical,[8] there should be no important obstacle to the routine incubation of all cultures for M. tuberculosis under added CO_2. In this study the tube slant cultures (Lowenstein-Jensen medium and 7H-9 medium) were incubated with loose caps for only 48 hours under 2–5 per cent CO_2.

It seems safe to assume that this is the explanation of the superior results obtained with the medium in dishes which were kept under CO_2 for the entire period of incubation. Probably some procedure which permits more effective access of CO_2 to the slants would abolish any differences between the three media studied. Nevertheless, the transparent agar medium in dishes (Petri or Felsen) is preferable to complex egg media under the same conditions, for reasons which have been elaborated upon elsewhere.[2]

It would seem presumptuous to compare the routine bacteriologic results of this study with similar previous studies of other investigators. In this report 90 per cent of 86 different strains of tubercle bacilli yielded growth in three weeks on Lowenstein-Jensen medium. Suffice it to point out that other investigators have not achieved comparable results with this standard medium by employing conventional methods of preparation of inocula and incubating under air without added CO_2.

The methods of collecting, digesting, decontaminating, and culturing sputum for tubercle bacilli, and of direct drug-susceptibility testing, as described and illustrated in these studies, would seem to meet the requirements of an efficient routine clinical laboratory. Also, with some modification, appropriate for the particular laboratory, equally successful bacteriologic examination of other types of pathologic materials can be performed by these methods.

Summary

In the study described it has been demonstrated that:

1. Enzymatic digestion followed by weak alkali treatment is superior to the conventional

sodium hydroxide method of preparing sputum for culture for M. tuberculosis.

2. An oleic acid-albumin solid agar medium (7H-10) under conditions permitting incubation under 2–5 per cent CO_2 in air and direct drug-susceptibility testing presents many advantages over a standard egg medium for culturing sputum specimens for tubercle bacilli under routine laboratory conditions. More than 95 per cent of strains of tubercle bacilli yield maximal numbers of colonies on this medium within 21 days.

3. A commercially available medium (7H-9) similar to the 7H-10 medium is probably equal to the latter for isolation of tubercle bacilli from sputum specimens.

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Dr. Middlebrook is director of research and laboratories, National Jewish Hospital, and associate professor of microbiology, University of Colorado School of Medicine, Denver, Colo. Dr. Cohn is assistant director of laboratories, National Jewish Hospital.

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Rockefeller Report Medical Views

"The use of available hospital construction funds for developing radically new types of medical facilities, such as hospitals permitting maximum self-help, and community care centers offering diagnostic services and extensive outpatient treatment and homemaker services" is among the recommendations of the second report of the Rockefeller Brothers Fund.

A further suggestion is that one approach to the problem of paying the costs of medical care is "group medical practice, affiliated with a common hospital and with essentially all costs prepaid by the subscribers through family health insurance premiums. . . . We urge as a major objective of prepayment plans over the next decade the coverage of doctor's and nursing care outside the hospital."

The report, "The Challenge: Its Economic and Social Aspects" is the second in a series issued by the Rockefeller Brothers Fund. It is available in bookstores or from the publisher, Doubleday & Co., 575 Madison Ave., New York; 75 cents.

The brave new world of prepackaged food, hot meals from coin-operated vending machines, and other mechanical approaches to the storage and distribution of human nutriment is already here. What this means for sanitation and health is presented in the following review.

IMPLICATIONS OF NEW DEVELOPMENTS IN FOOD AND MILK PROCESSING—PACKAGING, STORING, AND VENDING

Walter D. Tiedeman, M.C.E., F.A.P.H.A.

THE IMPELLING force behind most of the new developments in the packaging, storing, and vending of milk and other foods is the natural urge for businessmen to capture more and more consumer dollars. Many changes involve the saving of labor, which seems to become evermore costly. Incidentally, there have been some concomitant improvements in sanitation but this does not necessarily follow. It remains for health officials to evaluate the possible bearing of these developments upon nutrition and sanitation with a view to encouraging favorable developments and preventing those that may have unfavorable effects on health.

Where operators of processing plants, stores, and restaurants become conscious of their responsibility to protect the consumers upon whose continued health and life the success of their business depends, there is increased incentive for competing suppliers of packaging materials and machines to consider sanitation and health protection, as they visualize it, as part of their stock in trade in seeking new business.

Packaging Milk

In the fluid milk field there is an increasing trend toward offering this product in half-gallon and gallon containers at slightly lower prices per quart. This may have the desirable effect of increasing somewhat per capita milk consumption.

More and more fluid milk and milk products sold in stores are being offered in paper cartons. The trend in these cartons is toward a plastic rather than a paraffin coating. Although minor difficulties have been experienced with paraffin in the occasional development of slow leaks or with excess paraffin flaking off, the convenience of factory precoating and the ease with which plastic coated paper may be heat sealed probably are the principal factors in prompting such change. Fortunately, the manufacturers generally have followed recommendations of the Food

and Drug Administration in their selection of safe plastics for this use. This development, however, created a new problem, now solved, in the sterilization of the cartons which are formed from paper precoated with plastic and do not have a final hot dip just before they are filled, upon which reliance heretofore has been placed for sterilization.

Bulk Milk Dispensers

For serving milk in restaurants and institutions there is a marked trend toward the use of bulk milk dispensers. For the benefit of the uninitiated, these may be described briefly as refrigerated cabinets holding one or more five or 10 gallon cans of milk which have a mechanism for starting and stopping the gravity flow of milk, but which contain no part that comes in contact with the milk. The special cans used are washed and sanitized at the milk plant where they are filled mechanically and sealed. Milk delivery tubes are of synthetic rubber of the throw-away type. An extensive experiment was conducted in Ann Arbor for the Armed Forces Epidemiological Board to compare this method of dispensing with other methods, including serving in individual half-pint bottles. The results were favorable for bulk milk dispensers.[1] Since that work was done a 3-A Standard has been established for these dispensers,[2] compliance with which should be required by health officials.

Packaging Ice Cream

In the ice cream field there has been a great swing toward mechanical prepackaging of frozen desserts in cartons, paper cups, and in waxed paper or cellophane bags for products on sticks, which is favorable for protecting the product from contamination. The cold product when packaged by hand is subject to chance contamination, but offers no opportunity for growth of organisms. However, most such organisms are preserved in the product for days.

Dispensing and Packaging Coffee Cream

The serving of coffee cream in a clean and safe manner has long been a "headache" to sanitarians. Pitchers expose the product to contamination and growth. Most mechanical dispensers have inadequate refrigeration or are subject to contamination and growth as the result of repeated additions of cream to a container that remains where the cream is dispensed. The capped glass bottle containing an individual portion which is in common use has been a "snare and delusion" when one looks behind the scenes to view the hand washing, hand filling, and hand capping. Equipment is now available, although not yet extensively used, to do this work mechanically at the milk plant. This delivers trays of mechanically washed, filled, and capped glass bottles or mechanically filled and capped miniature paper cups of cream to the restaurant or institution to be dispensed as individual portions with cups of coffee. A more recent development is the packaging of cream in individual portions in small plastic envelopes that are filled mechanically. Still another possibility, although currently in rather limited use in the United States, is a Swedish process which mechanically packages small portions of cream, of about three-quarters of an ounce, in polyethylene lined, heat sealed, paper tetrahedrons. Tetra-Pak in various sizes is also being used to package citrus juices and more recently ice cream.

Moisture Barrier Packaging

In addition to the polyethylene plastic coating on paper used to make the Tetra-

Pak cartons, many moistureproof, sealable coatings have been developed to improve the keeping qualities of foods, including cereals and crackers. Polyethylene lined, heat sealed, paper bags are now being introduced for packaging raisins and probably will be used for other dried fruits. In appearance they resemble coffee bags. Trials showed that prevention of moisture loss increased the shelf life and kept the product in optimum usable condition.

Even age-old products like smoked and kippered fish are leaving the confines of the delicatessen store and entering the supermarket with all odors confined in a recently developed Mylar, Saran, and polyethylene bag. The trial line of products includes lox, kippered salmon, sablefish, smoked eels, white fish, and whiting.

Packaging and Dispensing Condiments

Do not be surprised to see special sirups offered at your supermarket in large collapsible screw-top plastic tubes resembling the tin ones in which one has become accustomed to buying tooth paste. These also should be adaptable for packaging condiments such as mustard, ketchup, and salad dressings. Furthermore, many efforts have been made to provide for use in mass feeding easily usable and cleanable machines to dispense condiments, perhaps primarily to save time and wastage, but also with a view to doing away with such unsightly things as ketchup bottles and mustard jars which are easy to contaminate and difficult to use.

A later and still more promising development is the packaging of ketchup, mustard, table sirups and salad dressings in pressurized cans, somewhat similar to the familiar one which on release of the dissolved nitrous oxide gas delivers ready to serve whipped cream. The problem of packaging these nonfoam products under pressure for complete release without opening the can has been a difficult one, but is now reported to have been solved and such products soon are to be available.

Prepackaging Meats, Fruits, and Vegetables

Those who frequent supermarkets, and who does not these days, are perhaps impressed with the tendency to prepackage almost everything, including meats, fruits, and vegetables. Very likely this trend does not spring from a burning desire to prevent contamination; the intent is principally to make it easy for the customer to pick up the quantity desired without clerical assistance and, perhaps, in the case of fruits and vegetables, to see that the customer takes some of the smaller or less desirable pieces along with the choice ones. At the same time, however, this practice provides protection from contamination by the spray from the mouths and noses of the passing customers. Much of the experience in packaging and in the development of safe packaging materials stems from the work of the Quartermaster Food and Container Institute for the Armed Forces.

Packaging Frozen Foods

Frozen foods necessarily require moistureproof wrapping to prevent dessication or freezer burn during storage. While the primary function of this wrapping is to serve as a moisture barrier, it incidentally has the desirable effect of preventing chance contamination of the food during shipment, storage, and marketing.

Metal Foils in Packaging

The use of metal, especially aluminum foils, in packaging is on the increase. Foil trays for many foods, especially pies and cakes, are an old story but are

constantly being put to new uses. Foil packaging in single-use portions of detergents and germicides, which must be kept moisture free to prevent deterioration, is of great interest to sanitarians. Although of no special sanitary significance, foil-wrapped potatoes ready for the oven should be mentioned as among the latest lures for the busy housewives' dollar. Further developments in the use of aluminum include the introduction of aluminum coffee cans in Germany.[3]

Storage of Foods

Considerable deterioration in quality, spoilage, and loss result from improper storage of foods. High temperature and lack of humidity control are principal factors speeding up rancidity, discoloring, rotting, and other degenerative processes. Even canned goods normally stored at room temperature will keep better longer when held at lower temperatures. While there are no world-shaking advances to report in the art of storing foods, improvements in packaging, the use of frozen foods, introduction of antibiotics and other advances in processing have helped protect foods from contamination and deterioration during storage. Improved refrigerated display cases also have contributed to maintaining quality and extending shelf life.

For warehouse storage developments in refrigeration and humidity control have resulted in a gradual improvement in quality of storage foods. The cold storage laws have served to maintain fairly good control over foods held in storage from one season to another.

Vending Machines

Improvements in methods of vending foods have been greatly implemented by improved packaging, as well as by improved sanitation in containers and mechanisms for vending foods and drinks. Again the stimulus is largely increased sales. Health officials who admit concern over the handling of foods in public eating and drinking establishments should be equally concerned not only about the dispensing mechanisms, whether manually or coin operated, but over the sanitary safeguards established in the preparation, handling, and storage of the food or drink to be vended.

A considerable interest in the possible health and sanitation hazards in this field was created by work of the Subcommittee on Food Sanitation of the Committee on Sanitary Engineering and Environment, National Research Council, and by investigations started some years ago under sponsorship of the Armed Forces Epidemiological Board. More recently the Armed Forces placed responsibility upon the manufacturer desiring to place machines in canteens to present satisfactory evidence of the successful testing of each device in a disinterested and nationally recognized laboratory. Much testing has been done by the National Sanitation Foundation Testing Laboratory, and some coin-operated vending machines now are available that bear its seal of approval as evidence of compliance with good practices in sanitation. Some other laboratories are reported to be doing similar testing.

The Public Health Service also has worked with the industry in establishing a recommended code [3] for coin-operated vending machines. Compliance with the requirements of this code is being used by the National Sanitation Foundation Testing Laboratory as one of the necessary requirements for approval.

Extension and development of coin-operated vending in recent years has been startling and fantastic. This process has been stimulated by the widespread introduction of coffee breaks even in small factories, the moving of factories to rural areas, and the desire to

establish sales of food and drink in scattered places where the volume of business does not justify maintaining full-time attendants. Where operators of vending machines have found themselves in competition with a lunchroom across the street or around the corner, they have found it necessary to improve the taste appeal of their product.

Machines for Hot Coffee and Chocolate

The urge for taste appeal is evident in the development of machines for dispensing hot coffee. At first all dry ingredients, namely, dehydrated coffee, granulated sugar, and dehydrated cream were used. At one stage of this development, machines were produced using all fluid ingredients, that is, melted frozen coffee concentrate, sugar sirup, and diluted evaporated milk. Now machines are available which automatically brew and store small batches of coffee, use sugar in dry or sirup form, and use fresh fluid cream. The sanitation criterion for the use of fluid cream is the same as that for bulk milk dispensers, that is, a refrigerated compartment for storage of the cream in the machine, containers sanitized and filled mechanically at the milk pasteurization plant with no part which comes in contact with cream remaining in the machine. This involves either two containers in the machine with automatic switching from the emptied to the full one, or automatic switching from the emptied container to the use of dehydrated cream until the container is replaced. Among the most recent developments is the introduction of the coffee in the form of roasted beans to be automatically ground before brewing. The introduction of a roaster for green coffee beans remains for the future.

Hot Chocolate

Except for the grinding and brewing operations, the development of machines for dispensing hot chocolate has followed that of the coffee machine. For those who enjoy the flavor of home-made cocoa, most of these leave much to be desired.

Cold Drinks

Coin-operated vending machines have long been in use for cold drinks. These are of the postmix or premix varieties. The postmix machines generally require connection with the public water supply into which carbon dioxide gas is introduced and on coin impulse a paper cup is discharged, followed by the sirup selected out of the two or three flavors offered, and carbonated water. Several instances of copper poisoning have been reported caused by drinks from such machines. Copper has been dissolved by the slightly acid water either from water cooling tubes within the machines, or from copper pipe in the water supply line where carbonated water was forced back at times when the gas pressure exceeded the water pressure. Single-check valves have proved ineffective in preventing this back-flow and some sanitarians require double check valves. If the effectiveness of a single check valve is zero, any multiple of zero is zero, and until better protection is worked out the use of postmix machines is highly questionable. In one instance, a drink drawn from the machine as soon as a case of copper poisoning was discovered and hospitalized, probably within half an hour, is reported as having shown on analysis 20 ppm of copper. It is quite likely that only the first or first few drinks drawn after the machine has stood idle for hours have caused acute poisoning. However, this appears to be an unnecessary hazard.

The premix machines do not require a water connection and are kept supplied with two-gallon stainless steel tanks of fully mixed and carbonated drinks filled mechanically at the bottling plant. These tanks are washed and sanitized

mechanically. In the machine a tank of carbon dioxide gas is attached simply to provide pressure for forcing the drink through the stainless steel cooler to the delivery spout. The use of copper or bronze parts exposed to the drink is avoided. Several makes of machines of this type have been tested by the National Sanitation Foundation and the manufacturer has been granted the right to use its seal of approval.

Sandwich Vending

Sandwich machines of many types have been used in the United States. Without public health supervision they offer possibilities for food poisoning. "Public Health Reports" relates an instance of at least two outbreaks of several cases of food poisoning (bacterial) traced to an unrefrigerated sandwich machine in a small hospital. The rule was that at two o'clock every day sandwiches left in the machine were to be discarded and a fresh supply placed in the machine. One or more of the cases was reported as having obtained sandwiches from the machine after 2:00 p.m., creating the suspicion that sandwiches were being held over.

Some of the early commercial sandwich machines, although refrigerated, were open to the criticisms that the first sandwich in was the last out and that unless the service man was conscientious about laboriously moving the older ones forward each time he serviced the machine some sandwiches, including perhaps some with egg salad or tuna fish salad fillings, might remain in the machine indefinitely. Furthermore, any passerby could pull out the electric connection, and some did apparently, to see if they could make the machine "jackpot," thus leaving it temporarily unrefrigerated.

Unless the preparation of commercial sandwiches is under health department supervision, almost anything can happen. Tests in our laboratory have shown standard plate counts in the millions in commercial sandwiches submitted by the manufacturer for testing. Placing stacks of sandwiches prepared in a warm room in a refrigerator with the expectation of cooling them quickly is nothing more than wishful thinking. By imbedding a thermocouple in the meat filling in the center of a cubical pack of 36 sandwiches made at 78° F and placed in a refrigerator at about 45° F it was found that the center had not reached 50° F overnight, that is, in about 15 hours. The ideal method of handling commercial sandwiches for vending, whether by machine or otherwise, is to "quick-freeze" the moistureproof wrapped sandwiches and keep them frozen until placed in the refrigerated machine. Some experimental work is necessary to do this successfully without delivering a soggy or otherwise unacceptable sandwich.

A sandwich machine is now available which will store sandwiches at 50° F or lower for discharge in proper sequence either cold, hot, or toasted. Machines have been in use for some time that will deliver a wrapped heated frankfurter in a roll within 20 seconds after dropping money in the slot.

Safety Devices

In all these machines it is necessary to lock the electrical connection to discourage tampering with it and to provide an automatic stop to prevent the resumption of vending following a temporary power failure until the machine is opened and reset. On drink-vending machines a similar stop is provided if refrigeration fails, if the supply of cups is exhausted, and if the waste bucket becomes more than two-thirds full.

Hot Foods

In the near future it will be possible to get a heated meal perhaps on a paper blue plate from a coin-operated vending

machine. Among the recent developments are machines for vending small sealed cans of hot soups or hot food such as spaghetti, corned beef hash, goulash, and many similar foods. Generally these are held at 150° F in the machine for long periods of time. There would be less possibility of damage to flavor and food properties if only the cans likely to be dispensed within the hour were heated, but to our knowledge this has not as yet been developed. The most unsatisfactory feature of these machines is the opening of the cans and the disposition of the food soiled covers and empty cans. Efforts are being made to develop an enclosed can opener which will be automatically washed after each use and which will catch and store the covers under the used wash solution. Sanitarians are not yet satisfied with this development.

Conditions for Satisfactory Operation

With the evaluation of new machines by sanitarians before they are placed in production, the employment of well trained men to service the machines, and occasional inspection by health department field men, food vending machines can be satisfactorily operated.

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Mr. Tiedeman is executive director, National Sanitation Foundation Testing Laboratory, Inc., University of Michigan School of Public Health, Ann Arbor, Mich.

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HEW Distinguished Service Awards

A number of Public Health Service personnel have recently received Distinguished Service Awards of the Department of Health, Education, and Welfare. Among them is Bernard B. Brodie, Ph.D., chief, Laboratory of Chemical Pharmacology of the National Heart Institute, for his development of chemical pharmacology, a new field of medicine which has led to a basic understanding of drug action.

Other Distinguished Award winners are Seymour S. Kety, M.D., of the National Institute of Mental Health; Alexander D. Langmuir, M.D., chief of epidemiology at the Atlanta Communicable Disease Center; and Eunice Rivers Laurie of the VD Branch in the same center.

At the same time a Superior Service Award was granted to Ralph Boatman Smith, chief of the new drug branch of the Food and Drug Administration.

An analysis of data obtained from cytological screening of white and Negro women for cervical cancer is presented. The data are used to calculate average duration of carcinoma in situ and of invasive cervical cancer.

PRELIMINARY FINDINGS OF THE MEMPHIS-SHELBY COUNTY UTERINE CANCER STUDY AND THEIR INTERPRETATION

John E. Dunn, Jr., M.D., M.S.P.H., F.A.P.H.A.

THE STUDY reported here was begun in the summer of 1952 after about one year of preparation, principally to train the technician staff. The organization of the study has been described elsewhere.[1] The primary objectives of the study are: (1) to explore the cytology technic as a device for mass screening of women for identification of asymptomatic cervical cancer, and (2) to acquire data that can be used to study epidemiologically the natural history of cervical cancer. The latter specifically is concerned with the chronological relationship of carcinoma in situ and invasive cancer of the cervix.

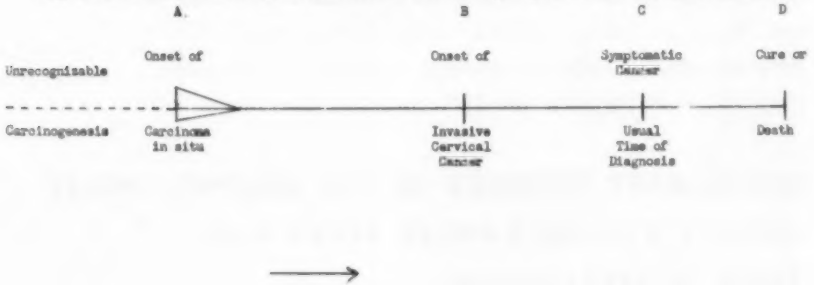
The desire to use cytology as a mass screening technic necessitated certain compromises with what would have been ideal for the epidemiological objective. This concerned principally the type of specimen used. Any screening procedure has as a primary consideration the unit cost per person screened. This led to the vaginal pool specimen as the choice for this study.

A consideration of the clinical and epidemiological approaches to the study of the relationship between carcinoma in situ and invasive cancer of the cervix has been presented previously.[2] Clinical findings have continued to support the view that some carcinomas in situ progress into the invasive stage. Questions as to the regularity of this progression, the usual time involved, and the invariability of the sequence are, however, still unanswered. The last question—the invariability of the in situ and invasive sequence—was answered logically and succinctly by Dr. Fred Stewart when he wrote, ". . . there being no other thing it can come from. . . ." [3] There can be little argument with this logical concept, and the real question is, does cervical carcinoma begin as a laterally extending surface change—the field concept as discussed by Stoddard [4]—with points of invasive break-through eventually developing from the under surface of this field? Or do invasion and lateral spread usually go on simultaneously from the beginning?

Epidemiological Approach to the Relationship of in Situ and Invasive Cancer of the Cervix

The epidemiologic approach to the questions regarding this relationship is not concerned with the fate of individual lesions, but rather with the way

Figure 1—Schematic Representation of the Morphogenesis of Cervical Cancer



(Reproduced with slight modification from Cancer 6:875 (Sept.), 1953.)

in which these two types of lesions are occurring in a population of women. If they are unrelated diseases that happen to affect the same organ, then they should show no consistent relationships in their occurrence. The fact that carcinoma in situ and invasive cancer of the cervix are both less frequent in Jewish than in other women, and that both lesions are more frequent in Negro than in white non-Jewish women forces admission at least of an association through other variables. If they are in fact different stages of the same disease they should show, in addition, quantitative relationships consistent with such an identity.

Cancer of the cervix is, or has been, ordinarily recognized as full-blown symptomatic invasive disease. Referring to the schematic representation of the genesis of cervical cancer in Figure 1, this is represented at point C. A count during some unit of time of the number of women in the female portion of a population who on the average have their cancers of the cervix recognized at this stage, expressed in terms of some convenient numerical population unit, is the incidence of the disease. The accuracy of this determination is dependent on the stability of the pattern for arriving at a diagnosis for the particular disease in the particular population. If, for example, a determination of the incidence of breast cancer were attempted at the time an educational campaign for breast self-examination were being promoted, an excess of breast cancers might be identified that would overestimate the true incidence. Only when the population of women and their physicians settled into a new pattern of breast cancer suspicion and diagnosis would incidence again be determinable. With cervical cancer there is a much more disturbing element to the diagnostic pattern with the use of the cytology technic, since it is possible to identify not only invasive cervical cancers in all stages of development, but the preinvasive intra-epithelial lesion of carcinoma in situ as well. It is doubtful whether there are many areas in the country where an accurate determination of the incidence of cervical cancer is at present possible.

Consider a hypothetical population of women who have been having their cervical cancers recognized in the symptomatic invasive stage represented by point C of the figure. If cytology is now introduced for all women as a screening procedure to identify those in need of diagnostic study, we would be bringing to recognition invasive lesions in all stages of development represented by the interval from B, the beginning of

stromal invasion, to C, the point of usual recognition. In addition, carcinomas in situ would be identified in all stages of development from point A, the minimal changes justifying such a diagnosis, to point B, where invasion is imminent. It must also be pointed out that point B might also represent spontaneous regression. If we express the numbers of in situ and invasive cervical cancers brought to recognition by our initial cytology screening in terms of units of the population screened, we would have the prevalence rates for these two lesions. If we continue to screen the population at periodic intervals with cytology to establish a new diagnostic pattern, we can again determine the incidence of disease. Now, however, we will determine the incidence of carcinoma in situ when at or near stage A in our diagram. If invasive cervical cancers do not as a rule come from in situ lesions, we would be determining the incidence for invasive cancers that do not have such an origin at or near the stage for their development represented by B. If the invasive lesions do come from in situ lesions, and the interval between examinations is less than the interval represented by A to B, then we should fail to find invasive lesions and all would be recognized in the in situ stage.

The incidence rate of a disease is the measure of the rate at which it is occurring per unit of time in a population. (Here all such rates are annual.) Expressed in terms of a total population it is, in effect, the average of age-specific rates weighted by the number of people within each age-specific group. Since successively older age groups are being depleted by general forces of mortality, the incidence rate for a specific disease as usually expressed is a measure of the annual impact of that disease on a population as a competitor with all other diseases and lethal forces that are attacking and destroying the population. If we ignore the depleting effect of mortality by not weighting age-specific rates by the numbers available in the specific age groups,* the average of the age-specific incidence rates then becomes the noncompetitive or pure annual risk of developing the disease for a similar population, but one with a constant increment of births and one that had never experienced mortality and therefore has equal numbers in each age group.

In our present consideration, there is the possibility of identifying a disease, assuming for the present that in situ and invasive cervical cancer are the same disease, at any one of three points in its genesis—A, B, or C in Figure 1. However if we identified it at B we would find that the individuals affected were older than if we identified the disease at A; and older still if we identified the disease at C. One would expect, then, if we expressed the incidence rate for the disease at each of these points of disease development in terms of a general population that the rate at point A would be greater than at point B; and at point B greater than at point C. This would be so because the age-specific population weights that go into general population rates become smaller with successively older age groups. However, if the age-specific rates were not weighted, we would expect their averages to be nearly † the same whether the disease is identified at points A, B,

* Actually age-specific rates are also weighted averages that reflect the cases and their corresponding populations for single years of age within the age span specified. With narrow spans for age groups, however—such as 5 or 10 years—the bias should be negligible and correction unwarranted.

† Theoretically, the average of age-specific rates at point A will exceed slightly that at point B; and that at point B will slightly exceed that at C, if the disease outlives the population. At the time the population is disappearing at the end of the life span there is disease at point A that cannot reach point B because the end of the population life span has been reached; and similarly there is disease at point B that cannot reach point C. Correction of this source of bias is possible if it seems warranted.

or C, if A, B, and C are indeed only different points in the genesis of a single disease. Also, if the latter is true the average of the age-specific rates whether determined at points A, B, or C could be used interchangeably.

Prevalence of a disease refers to a point in time and is the number of individuals with the disease at any stage between two points in the life history of the disease. Expressed in population units it becomes a prevalence rate. We have referred to the prevalence of undiagnosed invasive cervical cancer that would come from an initial screening of a population of women with cytology. These would be cases represented by the interval B to C in the diagram. Also the prevalence of carcinoma in situ would be found, represented by the interval A to B. Again, to avoid the depleting effect of general mortality, it is necessary to use unweighted age-specific prevalence rates. Prevalence is the accumulated incidence of a disease, or some defined stage of a disease, from its origin to its ultimate fate. The magnitude of prevalence then, in terms of incidence—that is, the ratio of unweighted age-specific prevalence rates to unweighted age-specific incidence rates —is a measure of duration. If incidence is an annual rate, average duration is expressed in years.

To summarize then, if we have age-specific incidence rates for carcinoma in situ and invasive cancer from a population of women, and prevalence rates for these two lesions, we should be able to reach some conclusions as to their interrelationship and duration.[2]

Presentation of Data

At the time of the 1950 census there were nearly 169,000 women in Memphis and Shelby County 20 years of age and older. This was the age group to which cytology examination was to be offered. Almost two-thirds of these were white and the other one-third colored, largely Negro. In order to have incidence rates for symptomatic invasive cervical cancer to which to relate the cytology findings a morbidity survey for cervical cancer was carried out covering the years 1950–1951.[5] As could be anticipated, these data as well as the subsequent cytology data showed cervical cancer rates for Negroes in considerable excess of those for white women. The data for these two groups, therefore, must be considered separately.

In addition to the cases of in situ and invasive cancers of the cervix being identified through cytology, a continuous morbidity survey has been attempted to identify those cases of cervical cancer that were occurring and were being diagnosed among women in Memphis and Shelby County outside of the portion of the population taking advantage of cytology screening.

The data discussed here cover the first three and one-half years of the operation of the project, from mid-1952, when it began, through 1955. When the currently available data are ready for analysis, there will be over 150,000 women who have had an initial examination, compared with the nearly 83,000 reported on here. Even more important will be the increased numbers that have had subsequent periodic screenings.

Data from Initial Cytology Screening

Table 1 gives the percentage distribution of the female population of Shelby County 20 years of age and older by color at the time of the 1950 census, and for the various populations screened by cytology. As one might expect, the screened populations tend to be deficient in older women. This deficiency becomes apparent for white women after age 50, and for Negro women after age 40.

Tables 2 and 3 contain the age-specific rates for invasive and in situ cervical

Table 1—Percentage Distribution of Women 20 Years and Older in Shelby County (1950 Census), and in First, Second, and Third Cytologic Screening

Age Group	Shelby County	First Screening	Second Screening	Third Screening
White				
Total Number	107,982	53,585	15,929	4,185
20–29	29.1	33.1	27.4	24.2
30–39	23.6	30.9	33.3	34.2
40–49	18.6	20.0	23.6	27.6
50–59	13.2	10.1	11.1	10.4
60–69	9.1	4.4	3.8	3.1
70+	6.4	1.5	0.8	0.5
Colored				
Total Number	60,863	29,372	10,076	2,517
20–29	26.3	41.0	37.6	26.2
30–39	24.2	26.6	27.4	27.7
40–49	20.9	17.8	18.3	24.2
50–59	14.0	9.2	10.8	14.5
60–69	9.0	3.9	4.7	5.9
70+	5.5	1.5	1.2	1.5

cancer identified in the populations of white and Negro women initially screened by cytology (columns 3 and after) and the incidence rates for clinically evident invasive cervical cancer found in the morbidity survey that preceded the cytology screening (columns 2 in Tables 2 and 3). The rates in columns 2, 3, and 6 of Table 2 are based on 122, 120, and 198 cases, respectively; and the corresponding columns 2, 3, and 5 of Table 3 on 126, 106, and 152 cases, respectively. From the magnitude of the corresponding rates in these two tables, it is apparent immediately that cervical cancer is a more frequent disease among Negro women. The ratio of the sum of the age-specific incidence rates for symptomatic invasive cervical cancer (column 2 of Tables 2 and 3) is 1.6 (7.63/4.65). The ratios in the various age groups do not vary from this to any great extent except in the first age group. The latter might be expected, since this is the age group where clinically evident cervical cancer first makes an appearance and the difference in cervical cancer between white and Negro seems to be largely one of intensity. The corresponding ratio for the cytological findings of invasive cancer prevalence is the same (64.80/39.90 = 1.6).

Duration of Presymptomatic Invasive Cervical Cancer

When a screening program such as this is introduced to a population, the disease being sought continues to appear in the unscreened population at its accustomed rate and in its accustomed form. Since cytological specimens are taken in physicians' offices and clinics where the clinical disease has been customarily diagnosed, it is reasonable to expect that such specimens will be submitted from some patients in the course of diagnosis in the conventional manner. A number of the invasive cervical cancers included in the initial screening, therefore, belong more appropriately to the unscreened than to the screened population. This appears evident in Tables 2 and 3 (3rd columns) where the prevalence rates for all invasive cervical cancers found in the screened

Table 2—Incidence of Symptomatic Invasive Cervical Cancer, and Prevalence of Undiagnosed Invasive and in Situ Cervical Cancer per 1,000 White Women in the Indicated Age Groups

Age Group (1)	Incidence of Symptomatic Invasive Cervical Cancer (2)	Prevalence of Undiagnosed Cervical Cancer Found by Cytology: All Cases from Cytology (3)	Cytology Cases with No Symptoms and Unsuspected (4)	Residual for Cytology When Non-screened Population Expected Is Satisfied (5)	Prevalence of Carcinoma in Situ Found by Cytology (6)
20–29	0.03	0.11	0.06	0.06	2.42
30–39	0.33	1.57	1.33	1.33	4.77
40–49	0.78	2.70	1.58	2.52	4.20
50–59	0.96	4.81	3.15	3.15	2.78
60–69	1.20	7.71	5.57	4.28	5.57
70 +	1.35	23.00	7.26	1.21	3.63
Sums *	4.65	39.90	18.95	12.55	23.37

* In discussion of the methodology being used here, reference was to the unweighted average of age-specific rates and its explicit interpretation. However, where ratios are being used, sums serve as well as averages.

Ratios for duration:

(1) $\frac{\text{Total invasive prevalence (column 3)}}{\text{Invasive incidence (column 2)}} = \frac{39.90}{4.65} = 8.6$ years

(2) $\frac{\text{Prevalence unsuspected (column 4)}}{\text{Invasive incidence}} = \frac{18.95}{4.65} = 4.1$ years

(3)

(a) $\frac{\text{Residual prevalence (column 5)}}{\text{Invasive incidence (column 2)}} = \frac{12.55}{4.65} = 2.7$ years

(b) For invasive disease having its origin before age 70:
$\frac{\text{Residual for cytology}}{\text{Invasive disease}} = \frac{12.02}{3.73} = 3.2$ years

(4) If in situ and invasive cancer are same disease:
$\frac{\text{In situ prevalence (column 6)}}{\text{Invasive incidence (column 2)}} = \frac{23.37}{4.65} = 5.0$ years

populations appear excessively high. They also become more excessive in the older ages where response to the availability of cytological screening is poorest. If we compute the ratio of the sum (see footnote Table 2) of these age-specific prevalence rates to that of the morbidity incidence rates (ratios (1) under Tables 2 and 3), we have estimates of over eight years for the average duration of invasive cervical cancer before it is usually recognized. I believe everyone would agree that this seems excessive.

An attempt was made by two means to obtain more realistic rates. In the one instance, those cases having symptoms and/or clinically suspect at the time of examination were eliminated. The clinical evaluation was that made by the physician at the time of his examination. This procedure provided the rates in the fourth columns of Tables 2 and 3. This produced considerable reduction in rates; and computing ratios with the sums of age-specific incidence and prevalence rates as before, provides estimates of 4.1 years for white and 3.7 years for Negro women as the average duration of invasive cervical cancer before usual clinical recognition (ratios (2) under Tables 2 and 3).

Table 3—Incidence of Symptomatic Invasive Cervical Cancer, and Prevalence of Undiagnosed Invasive and in Situ Cervical Cancer per 1,000 Negro Women in the Indicated Age Groups

Age Group (1)	Incidence of Symptomatic invasive Cervical Cancer (2)	Prevalence of Undiagnosed Invasive Cervical Cancer Found by Cytology		Prevalence of Carcinoma in Situ Found by Cytology (5)
		All Cases from Cytology (3)	No Symptoms and Unsuspected with Symptoms (4)	
20–29	0.12	0.66	0.42	4.40
30–39	0.54	1.53	1.15	6.91
40–49	1.67	4.58	2.48	5.91
50–59	1.61	11.15	4.83	2.23
60–69	2.07	16.65	5.26	4.38
70 +	1.62	30.23	13.95	6.98
Sums	7.63	64.80	28.09	30.81

Ratios for duration:

(1) $\frac{\text{Total invasive prevalence (column 3)}}{\text{Invasive incidence (column 2)}} = \frac{64.80}{7.63} = 8.5$ years

(2) $\frac{\text{Prevalence unsuspected (column 4)}}{\text{Invasive incidence (column 2)}} = \frac{28.09}{7.63} = 3.7$ years

(3) If in situ and invasive cancer are the same disease:
$\frac{\text{In situ prevalence (column 5)}}{\text{Invasive incidence (column 2)}} = \frac{30.81}{7.63} = 4.0$ years

Another attempt was made to isolate those invasive cases attributable to cytologic recognition by using the continuing morbidity findings. If we say that the portion of the total female population that remained unscreened each year was entitled to continue having invasive cervical cancer at the rate indicated by the precytology morbidity survey, then any deficit of observed as compared to expected numbers for this unscreened population can be considered to represent those who inadvertently got into the screened population. Deducting these from the screened population findings would leave a residual that could be claimed to be found by cytological examination. This can be done only for the white population and is shown in the fifth column of Table 2. The ratio of the sum of these rates to the sum of the morbidity incidence rates provides an estimate for the duration of asymptomatic invasive cervical cancer of 2.7 years (ratio (3, a) under Table 2).

It will be noted in comparing the rates of columns 4 and 5 of Table 2, that the principal difference is the low rate for the age group over 70 in column 5 which resulted from only a single case remaining as a residual in this age group to be attributed to cytology. This, of course, is the population age group about which there is the most uncertainty because of small numbers and possibly other age-group characteristics. The average duration of invasive cervical cancer having its origin before age 70 can be determined * and this provides an esti-

* If we assume no new disease develops at age 70 and beyond, we are left with a prevalence of disease at the end of age 69 which needs to terminate as incident cases of symptomatic invasive disease in the age group 70–79 years. The prevalence rate at the beginning of age 70 is reduced by the incidence rate for age 70 and over for successive years until exhausted. The sum of these prevalence rates for individual years divided by 10 gives a prev-

mate of 3.2 years (ratio (3, b), Table 2).

Duration of Carcinoma in Situ

It was pointed out in the earlier discussion of the methodology being used here that the unweighted age-specific incidence rates determined at any point in the genesis of a disease will be equivalent (their sum or average being nearly the same) and they can be used interchangeably. Incidence rates for carcinoma in situ are not available, and as will be seen below, the populations having repeat examinations reported here are inadequate to provide them. If we make the assumption that carcinomas in situ are the source of and do progress to invasive cancers, we can use the incidence rates for symptomatic invasive cancer found in the precytology morbidity survey (column 2 of Tables 2 and 3) as a substitute for such rates. The ratio of the sum of the age-specific prevalence rates for carcinoma in situ to the sum of the age-specific incidence rates of symptomatic invasive cancer (ratio (4) under Table 2 and ratio (3) under Table 3) indicate that under these conditions the average duration of carcinoma in situ would be about five years for white women and nearly four years for Negro women. If the assumption concerning the invariable progression of in situ lesions is incorrect because some of them regress, but invasive lesions do have an in situ stage, then these are overestimates. If in situ and invasive lesions are irregularly related or unrelated, of course, these determinations are meaningless.

alence rate for the age group 70–79 years. Disposing of the prevalent disease generates an incidence rate for this age group that is one-tenth of the initial prevalence rate at age 70. If we assume the 60–69 year prevalence rate is also that for women entering their 70th year the ratio for (3, b), becomes:

$$\frac{(12.55-1.21)+0.68}{(4.65-1.35)+0.43}=\frac{12.02}{3.73}=3.2$$

Data from Repeat Cytology Screening

As stated earlier a population of women being examined periodically for cervical cancer with cytology will be having disease recognized at a new point in its genesis. To refer again to the diagram in Figure 1, this is at or near point A for carcinoma in situ, and at or near point B for invasive cervical cancer if not preceded by an in situ stage. The rates at which these are appearing will now be incidence rates.

Unfortunately the period covered by the data being reported here did not allow a large volume of women to enter the repeat screening populations. Among white women, there were 15,929 having a second cytology examination during the period covered by the data, and 4,185 who had a third. Among Negro women, 10,076 had a second cytology examination and 2,517 had a third examination. When presently available data are ready for analysis, there will be nearly 60,000 women with second examinations, and over 30,000 with three or more. Since incidence rates are annual, populations will be expressed on a person-year basis.

The findings for white women screened the second and third time are given in Table 4. The person-years shown for women having a second examination are for those having negative cytology on initial examination. In addition to these, there were 192 women with something other than negative cytology on first examination, but in whom malignancy was not diagnosed, and in whom sixteen additional cases of carcinoma in situ and one invasive cervical cancer were found at second examination. This group of women will not be considered further because of the uncertainty of their status at first examination.

Obviously the numbers of cases in Table 4 are inadequate for calculating usable age-specific rates. When age-

Table 4—Results of Cytology Screening of White Women, for Second and Third Time

Age Group	Second Screening			Third Screening		
	Person-Years	Invasive Cancer	Carcinoma in Situ	Person-Years	Invasive Cancer	Carcinoma in Situ
20–29	5,864	..	3	1,097	..	1
30–39	7,109	1	8	1,552	1	1
40–49	5,079	1	2	1,259	..	..
50–59	2,377	1	3	472	1	2
60–69	821	1	..	143	..	..
70+	169	..	..	25	..	..
Total	21,419	4	16	4,548	2	4

specific incidence rates for carcinoma in situ are available, it will be possible to compute the average duration of this lesion irrespective of its relationship to invasive cancer of the cervix. A biased estimate can be made, however, by comparing the number of cases found here with what would be expected if one applied the carcinoma in situ prevalence found on initial examination. If the carcinoma in situ prevalence rates of Table 2, column 6, are applied to these populations, it would be expected that a population like that screened the second time would have had 81 cases of carcinoma in situ. The ratio of the expected prevalence cases to the observed incidence cases (81/16) would provide an estimate of 5.1 years for the average duration of carcinoma in situ. For the population screened the third time the expected carcinoma in situ prevalence would be 18 cases, and the ratio of this number to the observed (18/4) provides an estimated average duration of 4.5 years. Again it should be pointed out that there is the same bias in this method of estimating duration as there would be in using total population rates. In addition the populations that participated in second and third screenings are especially deficient in older women.

A population like that screened the second time would be expected to produce ten cases of symptomatic invasive cervical cancer a year according to the experience prior to cytological screening (column 2, Table 2). If incidence rates for beginning invasive cervical cancer, which the four observed cases represent, were available, the expected number would be increased slightly. The deficit in the number of invasive cervical cancer cases observed as compared to those expected is consistent with the hypothesis that at least some invasive cervical cancers have their origin in carcinoma in situ. The deficit of invasive cases occurs because these cases were removed as carcinomas in situ on first screening.

However, this is not true for the population of women screened a third time. A population of women like this would have been expected to produce almost two cases of symptomatic invasive cervical cancer in the time since the second screening according to the precytology experience (rates of column 2, Table 2), and this would be increased slightly if incidence rates for beginning invasive cervical cancer were available. Here, then, there is no deficit of invasive cancer to ascribe to carcinoma in situ origin. It would be unwise, however, to attempt to draw any sweeping conclusions on the basis of two cases. This inconsistency between the second and

Table 5—Results of Cytology Screening of Negro Women, for Second and Third Time

Age Group	Second Screening			Third Screening		
	Person-Years	Invasive Cancer	Carcinoma in Situ	Person-Years	Invasive Cancer	Carcinoma in Situ
20–29	5,714	..	10	798	..	1
30–39	4,127	1	13	831	1	3
40–49	2,634	4	2	716	1	2
50–59	1,499	2	1	427	1	..
60–69	647	1	2	179	..	..
70+	179	..	1	47	..	..
Total	14,800	8	29	2,998	3	6

the third screenings will be commented on further.

The findings for the second and third screenings of Negro women are given in Table 5. The population of women included for the second screening are those who had a negative cytological examination on the first screening. As with the white women, an additional 209 women with other than negative cytology on the first screening were found to have 14 cases of carcinoma in situ and two of invasive cervical cancer on the second screening. These also will not be considered further.

Here again the deficiency in the number of cases for most age groups makes the calculation of age-specific rates unwarranted. Using the same procedure as for the white populations, and the carcinoma in situ prevalence rates of Table 3, column 5, the population screened a second time would have an expected prevalence of 76 cases of carcinoma in situ, and the population screened a third time, 15 cases. The ratio of these to the observed numbers provides an estimate of 2.9 years (76/29), and 2.5 years 15/6) for the duration of carcinoma in situ. Again it should be pointed out that there is the same bias in these estimates and older age group deficiencies as was true for the white population. However, they are both definitely less than the similar estimates for the latter. Earlier it was pointed out that the excess of cervical cancer in Negro women was obvious from a comparison of their rates with those for the white women, and the ratios of the sums of their age-specific rates for symptomatic invasive cancer incidence and for invasive cancer prevalence were 1.6. The similar ratio for carcinoma in situ prevalence is 1.3 (30.81/23.37). The excess here is not as marked, and this would be consistent with the possibility that the average duration for carcinoma in situ in Negro women may be somewhat less than for white women.

The Negro women screened the second time would have an expected number of 11 cases of symptomatic invasive cancer from the rates of column 2, Table 3. This again would be slightly more if incidence rates for beginning invasive cervical cancer were available. The observed eight cases indicate some deficit that would be consistent with the hypothesis that some invasive cancers have a carcinoma in situ origin. However, again the population screened a third time has no deficit of invasive cancers since the three observed are about what might be expected.

Discussion

It would be unwise to attempt to draw too many firm conclusions from the data that have been presented here. Much still needs to be done in characterizing the screened populations regarding fertility, pregnancy, source, and so forth, as possible sources of bias. Consideration will also have to be given to estimating the efficiency of the cytology method as used here for any corrections of rates that may seem indicated. Also there are those women who were under suspicion because of cytological findings but who failed to have their diagnostic study completed. Some of these should have contributed to the rates as cases of in situ or invasive cervical cancer and some corrections may be indicated.

The data from the initial cytology examination are the more adequate for analysis. From these, estimates were made for the average duration of asymptomatic invasive cervical cancer from the time of beginning stromal invasion to the time of usual diagnosis that ranged between three and four years. It is possible that these are conservative estimates. The denominator of the ratios that provided the estimates is based on the cervical cancer experience of the whole adult female white and Negro populations prior to starting the cytological screening program and are therefore as exact as possible. The numerator of the ratio, however, is based on the results of cytological screening and some of the reasons why the rates so determined may need to be corrected upward were given above. On the other hand, the screened population may be selectively biased for women who have had pregnancies and the complications therefrom, and thus represent a group with greater risk of cervical cancer. If this were true, it would tend to offset any deficiencies in the rates going into the numerator. The true average duration of asymptomatic invasive cervical cancer, then, may well be within the three- to four-year range when its more exact determination is possible. There would appear to be considerable advantage, therefore, in the earlier discovery of invasive cervical cancer for women who are placed under periodic cytological surveillance.

The data available at this time for considering carcinoma in situ are far less adequate. If carcinoma in situ is the precursor of invasive cervical cancer, then estimates that can be made indicate that the average duration for such lesions is in the range of four and five years. This would be from the beginning of such lesions, as detectable by the cytological technic used here, up to the time of stromal invasion. These estimates are valid only if the in situ-invasion sequence is the constant pattern.

An estimate of the duration of carcinoma in situ that does not involve any assumption about its ultimate fate will be possible when incidence rates for this lesion become available. Rather uncertain estimates were attempted using the observed cases found in the populations screened the second and third time and the expected prevalence of in situ cases in such populations according to initial screening experience. For white women the estimates that resulted were 4.5 to 5 years; and 2.5 to about 3 years for Negro women. These can be regarded as nothing more than very crude estimates and may well prove to be quite inaccurate when adequate data are analyzed.

Of considerable interest is the fact that for both white and Negro women screened a third time there appears to be no deficit of invasive cervical cancer to be accounted for by the removal of carcinomas in situ in previous screenings. Such deficiencies did appear to be evident for women screened a second time, even though here one might expect that "missed" cases from first screening would exaggerate the apparent

incidence more than would be true for any subsequent screening. (The prevalence cases at initial screening are several times as numerous as incidence cases in subsequent rescreenings so that for any fixed quantitative efficiency of the cytological technic being used, the carry-over of "missed" cases would be greater from initial screening than from subsequent screenings.)

The data have not yet been analyzed for possible explanation of the apparent inconsistencies in the invasive cervical cancer findings of second and third examinations. Additional data may resolve the apparent discrepancy as due to the insufficient third screening results available at this time. What does appear to be fairly certain, however, is that at least a proportion of cases progress from negative cytology to positive cytological findings from an early invasive cervical cancer within a year. Considering the proportion of new lesions found in repeat screening that proved to be early invasive carcinomas (4/20 and 2/6 for white women; 8/37 and 3/9 for Negro women), it suggests that somewhere between a fourth and a third of such new lesions may already be invasive within a year. This indicates nothing regarding the potentiality of the in situ lesions.

It is of interest that Nieburgs, et al.,[6] in reporting the results of a similar general population study found that for new cases discovered among women undergoing repeat screening, 12 were carcinomas in situ and four were early invasive cancers.

Conclusions

A preliminary report is given of an analysis of data resulting from the cytological screening of 53,585 white women in an initial examination, and of 20,114 a second or third time, as well as of 29,372 Negro women who had an initial examination and 12,593 women examined a second or third time.

Calculations of the average duration of invasive cervical cancer resulted in estimates ranging from three to four years from the time of beginning invasion to the time of usual diagnosis in this community. More detailed analysis may modify these estimates slightly but they should be near this range. Periodic cytological examination, then, offers considerable advantage in the earlier discovery of invasive cervical cancer.

Calculations were made of the average duration of carcinoma in situ on the assumption that the in situ-invasive sequence invariably occurs. This provided estimates of four years for Negro women and five years for white women. Very crude estimates not requiring this assumption are about the same for white women but somewhat less for Negro women.

The results of the second screening offer some support for the hypothesis that at least some invasive cervical cancers have their origin in carcinomas in situ. The small number of results from the third screening, however, does not support the hypothesis, although additional data may reconcile the apparent discrepancy. It does seem certain, however, that a substantial proportion of cervical malignancies progress from negative to positive cytological findings associated with an early invasive cancer within a year.

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Dr. Dunn is with the Field Investigations and Demonstrations Branch, National Cancer Institute, Bethesda, Md.

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Carnegie Grant to WICHE

A major addition to the current program in the health sciences and professions of the Western Interstate Commission on Higher Education is made possible by a grant from the Carnegie Corporation. By this project 13 western states and territories will work together to prepare for doubled college enrollments through interstate planning in higher education. The Carnegie grant is making possible regional studies, workshops, and conferences, financing, getting additional teachers, and making maximum use of existing facilities and buildings.

A conference on state universities financing in April brought together state budget officers, legislators, and university officials. Studies are being developed on the need for teachers, current and proposed output, migration pattern of college teachers, and the need for expanded facilities.

The area of public health and medical education has been in the forefront of WICHE's concern. There is but one school of public health in the region; a number of the states have neither medical nor dental schools. Studies have already been undertaken in the field of dental and nursing education. There is also a Mental Health Training and Research Council with explorations under way toward the development of a psychiatric residency program between universities and state hospitals on an interstate basis.

The relations between the hospital and the community have been discussed from several points of view in previous issues of the Journal (April and June). The location of the physician's private office in the hospital, the factors involved in this arrangement, and its consequences for the provision of medical care are presented in this article.

PHYSICIANS' PRIVATE OFFICES AT HOSPITALS

C. Rufus Rorem, Ph.D., C.P.A., F.A.P.H.A.

THERE IS a current evolution in medical practice which is bringing staff members into closer relationships with hospitals. Many individual physicians are maintaining offices for consultation with and diagnosis and treatment of private patients who pay fees directly to the doctors who, in turn, pay established rentals for these facilities.

A study of private office practice at hospitals is being conducted by the Hospital Council of Philadelphia through a grant from the Division of Hospital and Health Medical Facilities of the Public Health Service. Several hundred nonprofit community hospitals which are not directly connected with medical schools now provide office facilities for doctors on hospital property or in structures adjacent to hospital buildings.

This development is entirely separate from the provision of offices for full-time members of the medical faculty or directors of clinical services at community hospitals. It may also be contrasted with activities at proprietary hospitals owned by physicians who maintain offices at the institutions.

Limited Type of Group Practice

The establishment of physicians' private offices at hospitals has not evolved as a social demonstration of effective use of capital investment. Facilities have been provided at the request of physicians who wish to conserve time in the care of patients and to avoid personal capital investment which would be necessary if equivalent services were to be rendered in private individual offices.

The arrangement is a limited form of group practice. Doctors occupy contiguous office facilities, share certain overhead expenses, and are available to each other for consultation and the referral of private patients.

The institutions studied have been limited to those where the tenant-physicians are engaged in competitive practice without sharing their income on the basis of regular salaries or some type of contractual distribution. At some institutions, however, small private groups have been formed which conduct their practice within the facilities provided.

Many Different Patterns

The arrangements for physicians' private offices are not identical. They exist in both small and large institutions, in villages as well as in metropolitan areas, in remodeled facilities, and in specially constructed buildings on hospital grounds. Some are commercially owned

and operated on land adjacent to nonprofit community hospitals. Usually the facilities are connected with the inpatient facilities by hallways, bridges, tunnels, or sheltered passageways.

This paper describes the general administrative and financial arrangements of typical programs and attempts to indicate their advantages and limitations for doctors, patients, hospitals, and the public.

Physicians' private office arrangements are found in Boston, Hartford, New York, Philadelphia, Pittsburgh, Detroit, Chicago, Atlanta, Memphis, Shreveport, Houston, Denver, and Los Angeles. They are also available in many smaller cities, such as Princeton, N. J.; Kalamazoo, Mich.; Rockford, Ill.; and West Memphis, Ark.

There is no marked geographic concentration of doctors' private offices at hospitals, but there are 10 such institutions among the membership of the Hospital Council of Philadephia. They include such well known nonprofit, nonteaching hospitals as the following: Abington Memorial Hospital, Bryn Mawr Hospital, Pennsylvania Hospital, Episcopal Hospital, Stetson Hospital, Burlington County Hospital at Mount Holly, N. J., Children's Hospital in Philadelphia, and Lankenau Hospital.

The most extensive program is found at the Presbyterian Hospital Center, New York City, where 64 offices, with a total of 46,000 square feet, provide full-time and part-time facilities for 256 members of the full-time and part-time attending staff. Tenant-physicians pay monthly rentals for full-time or part-time occupancy, or an hourly fee for occasional services to private patients.

Hospital Ownership Prevails

Most of the private offices are located in facilities which have been remodeled or renovated for the purpose, or in special buildings constructed at the time of expansion or change of location. Special floors for doctors' offices in the Philadelphia area have been provided in new buildings at the Lankenau and the Episcopal Hospitals. Separate buildings have been erected by the Baptist Memorial Hospitals in Memphis, Atlanta, and Little Rock. Others are located in specially constructed facilities at the Princeton Hospital, N. J.; the Methodist Hospital, Kalamazoo, Mich.; and the Rockford Hospital, Rockford, Ill. At the Chicago Wesley Memorial Hospital a large wing with seven floors for doctors' offices is nearing completion.

Private corporations own office facilities adjacent to the Bryn Mawr Hospital in Pennsylvania and the Hartford Hospital, Conn. The former was financed by an architectural and construction firm. The building is managed by a committee of five persons, three of whom represent the owners, one the tenants of the building, and one the management of the hospital. At Hartford the money was provided by an insurance company which operates the building as a business investment. Each of these two buildings occupies land which had been purchased from the hospital and which adjoins hospital property.

Lease Agreements

Rentals paid by tenant-physicians are usually about the same as those charged at other office buildings in the community. This equality results from three basic factors: to avoid unfair competition with private business investors in the community; to assure earnings equal to other hospital investments; and to avoid criticism that a nonprofit institution permits any financial advantage to ensue for the benefit of private individuals.

As a general rule, eligibility to occupy these facilities is limited to active members of the medical staffs of the hospitals

involved. A problem may arise when the offices are insufficient to accommodate the entire staff. Such problems have been avoided by obtaining applications for leases before renovation or new construction is undertaken. But doctors may be given original priority on the basis of rank and length of service on the staff. After the initial assignment, new tenants are generally accepted in the order of their applications.

Certain Legal Problems

The physicians' private offices are legally considered as private business activities of the hospital. The institutions have not challenged the right of local assessors to levy real estate taxes comparable with those assessed on office buildings and other similar property in the area.

The general attitude of the Internal Revenue Service has been that such facilities are a natural and related activity of hospitals and that income received by the institutions is not subject to federal taxation.

There appear to be no legal difficulties involved if the hospital should desire to apply certain endowment funds to the construction of doctors' offices which are productive of revenue to the institution. A number of hospitals have done so. Legal opinions indicate that the validity of such action is based on whether the investment is prudent and likely to yield as much revenue as alternative investments in stocks, bonds, and other securities or real estate.

Some institutions have obtained capital for construction through loans from insurance companies or local banks which recognize the doctors' offices as revenue-producing activity protected by the general credit of the corporation.

Government taxation has not been explicitly used for the construction of doctors' offices. Some rural hospitals, including those financed by federal "Hill-Burton" grants, have provided doctors' offices for which members of the attending staffs pay regular rental fees. No instances are known of a general public campaign for voluntary contributions to construct doctors' offices to be used by private practitioners.

Motives Prompting Action

The motives for the establishment of doctors' offices have been varied in detail but similar in their broad objectives, namely: to achieve convenience and save time for physicians and patients and also to increase utilization of hospital facilities. The immediate cause for one large hospital was a change of location from a crowded center-city area to an extensive suburban tract. The medical staff and their patients were required to travel greater distances, but there was convenient space for parking automobiles. After six months' experience with the new location, a number of attending staff members requested that doctors' offices be provided. At present 57 of a staff of 100 doctors maintain offices at the institution, most of them on a full-time basis.

In one suburban area, zoning laws prohibited doctors from maintaining offices in apartment houses unless they personally occupied part of the space as living quarters. This led to the construction of several office buildings in the community, one of which was located at the hospital.

During World War II a large Philadelphia hospital had the opportunity to buy a medium sized vacant office building adjacent to the hospital grounds. It was converted to house 47 physicians, many of whom also retained offices elsewhere. The building was connected with the hospital by a tunnel. After 14 years, these private offices are in constant demand, with pressure upon the institution to furnish additional quarters.

When a new hospital was built in

Chicago 20 years ago, certain members of the attending staff had also been owners of a proprietary institution at which they maintained private offices. Upon assurance that private offices would be available, the doctors disposed of the proprietary hospital, and 17 transferred their practice to the new institution. The hospital is now building a facility which will accommodate 100 additional members of the attending staff.

The trend toward physicians' offices at hospitals is occurring within the general framework of individual competitive medical practice. Some income-sharing groups have rented space within facilities, just as groups and individual physicians have done in other office buildings. To our knowledge, the existence of doctors' offices at hospitals has not, of itself, inspired the development of private group medical practice. But it has acquainted many doctors with the economies and convenience of practice in close proximity to other physicians and the scientific equipment of a modern hospital. As a rule, the physicians are not selected or admitted to the offices with a view to maintaining a balance among the various professional specialties.

Advantages for Physicians

The following advantages have been mentioned by physicians who have occupied private offices at hospitals. Much time is saved in transportation between a downtown location and the hospital. Referral to other practitioners may be easily accomplished. Emergencies with respect to inpatients are more easily handled when the doctor is able to care for them without canceling office appointments.

The ready availability of the hospital diagnostic and equipment apparatus avoids certain capital investment by the individual doctor. Patients become acclimated to hospital visits and are less apt to resist inpatient hospitalization when this becomes medically necessary.

Doctors find it more convenient to make rounds of hospital inpatients. At least one physician mentioned that his being at the hospital made him more available in case of an emergency. He orders private-duty nurses for his patients less frequently.

Doctors' offices at hospitals are most popular with surgeons, obstetricians and other specialists who hospitalize a relatively high proportion of their patients. They are less attractive to such specialists as pediatricians, psychiatrists, or dermatologists.

Doctors' Criticisms

Certain disadvantages of doctors' offices at hospitals have been mentioned. Practitioners no longer perform as many revenue-producing minor laboratory tests. It might be argued, of course, that they have more time to perform other services involving higher professional capacities and fees. Some physicians have feared the possibility that hospital representatives would attempt to exercise improper control of medical practice.

There has been a suggestion that a tenant-doctor might enjoy unfair advantage by virtue of being located at the institution. In fact, it appears that a doctor with an office at the institution is more likely to be called upon for emergency care of staff service cases.

A busy surgeon at one hospital who recently closed his "other office," mentioned a minor problem. Relatives visiting inpatients find it convenient to stop by the doctor's office and "chat" about their family members. He accepts this fact as the natural result of his availability which creates offsetting advantages.

Patient's Viewpoint

Patients have found the hospital location of doctors' offices to be convenient. The doctor is always "in," or within easy call somewhere at the institution. Office appointments are not cancelled because of emergencies occurring with postoperative cases at the hospital.

The patient may regard the hospital as a one-stop medical shopping center. It is easy to obtain consultations with other physicians as prescribed by his doctor, or to visit hospital departments for specialized diagnostic and treatment services.

From the patient's point of view doctors' offices should be accessible and reasonably convenient to visit. A patient will follow his doctor to almost any location for inpatient hospitalization, which he experiences only once in several years and during which he remains at the institution. But he may be reluctant to visit a doctor's office regularly if the trips involve discomfort, inconvenience, or embarrassment.

Hospital Attitude

Hospital trustees and administrators believe that establishment of doctors' offices has fostered a feeling of unity between the institution and medical staff, which might be impossible or difficult with other arrangements. The physicians develop more intimate contact with institutional care, including matters of expense. They observe more critical phases of their patients' recovery and develop a better understanding of the duties performed in their absence.

Staff committees find it easier to achieve full attendance at meetings when the doctors maintain their offices at the hospital. Many sessions formerly held during late evening hours are scheduled before the doctors leave for the day.

The existence of doctors' offices at the hospital increases the private ambulatory diagnostic services performed by hospital departments. This results in a greater utilization of the public's investment in the institution and makes possible a maximum economy in the provision of services.

Many hospital staffs and trustees have contemplated establishment of doctors' offices at the institutions. They have been held back by various factors, of which the following may be mentioned. Renovation or construction costs money, and some of the institutions have been unable or unwilling to borrow additional funds or to apply existing assets to this purpose. Other groups have feared that difficulties might arise in the assignment of space when there was an insufficient number of offices to accommodate all doctors. The latter problem might be solved by asking physicians to indicate their interest in advance of the investment in the new facilities. First choice would be given those who indicate their desire before expenditures have been undertaken.

One hospital administrator questioned the value of leasing office space to doctors. At the institution, a number of medical staff members are given free office space in which they conduct practice on a "geographic full-time" basis. The administrator felt that a landlord-clinic relationship would create special difficulties beyond those which he had already encountered.

Doctors who maintain offices at the hospitals are unanimous in their opinion that this arrangement has permitted them to practice better medicine with the same expenditure of time and energy, or to provide equivalent medical service with less difficulty and inconvenience. The arrangement encourages and permits more personal contact with bed patients. Patient rounds are completed more often regardless of emergency calls to critically ill patients.

The development of doctors' offices at hospitals must ultimately be appraised

in terms of value to the general public, the hospitals, the patients, and the medical profession. Economic advantages should be shared with the patients who receive the services as well as the public which provides the facilities.

This trend is a demonstration of the effective use of capital investment and the coordination of professional services with institutional activities. Those who have undertaken the arrangement do not consider it to be a revolutionary practice or a demonstration in the field of public health. Potential values from the public health point of view are great, and there is every probability that they will be more fully realized in the immediate and long-run future.

Dr. Rorem is executive director, Hospital Council of Philadelphia, Philadelphia, Pa.

This paper was presented before a Joint Session of the American Association of Hospital Consultants and the Medical Care Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 12, 1957.

Nearly 100 Group Dental Care Plans

For professional and lay groups interested in organizing dental prepayment programs the Division of Dental Resources of the Public Health Service has prepared a "Digest of Prepaid Dental Care Plans, 1958." This new 46-page publication describes nearly 100 known active group dental care plans. Information on the plans includes methods of operation, benefits, coverage, as well as name, address, sponsorship, date established and areas served, eligibility requirements, and size of enrollment. For four of the more comprehensive plans—three on the Pacific Coast, one in New York City—dental fee schedules are reproduced in their entirety.

Single copies are available from the Division of Dental Resources, Public Health Service, Washington 25, D. C.

Just what are the needs for nursing of a population outside of the hospital? To arrive at an answer, a study was organized in Butler County, Pa. How this study is being carried out, what tools are being used and what problems have been encountered are the themes of this article.

STUDYING EXTRA-HOSPITAL NURSING NEEDS: A PRELIMINARY REPORT

Janice E. Mickey, R.N., M.S., F.A.P.H.A.

FOR SEVERAL years in teaching principles of public health nursing when the class entered the part of the course dealing with program and staff planning, the students were given the old 1:5,000 and 1:2,000 or 2,500 formulas to assist them in deciding how many nurses would be needed by a given community. They talked about suiting the staffing and program to the local situation, but there was not too much to help them know concretely about the needs of the population directly related to nursing.

A colleague from the field of biostatistics started asking questions about nursing needs for the population at large and these questions could not be satisfactorily answered. He then challenged the formulas, and it was not possible to find objective evidence of their validity. Not too long after that the nursing groups of the Commonwealth of Pennsylvania decided to conduct a survey of nursing needs and resources, and some of the questions from various local committees again pointed out the need for studying the problem.

For many years administrators of public health nursing programs have been concerned with the problem of securing services to meet community needs. This problem is particularly important at present when the nature and extent of community needs are being modified by changes in patterns of hospitalization. What people want and will accept from nursing is constantly changing with increased community education programs. Patients with home care needs seem to be multiplying by leaps and bounds. Questions cannot help but come to mind when administrators are besieged by demands for new and different services and an evaluation is needed of what the basic needs are for the population at large. The ferment finally resulted in an approach to Johns Hopkins University and later to the Division of Nursing Resources of the Public Health Service. A nursing research grant was made by the Public Health Service in the summer of 1956 to finance the study.

Purpose and Aims

The object of this study is to arrive at a method of securing an estimate of the present nursing needs of people at home. Its specific aims are: (1) to develop a procedure for estimating extra-hospital nursing needs of the general population, and (2) to apply this procedure to one county in a preliminary

test of its effectiveness as an administrative tool.

For these purposes a nursing need has been defined as a situation in which the individual or family has a health problem that requires nursing assistance. This may include therapeutic care, health teaching, counseling, or guidance. It also assumes that the family does not have prior knowledge or competence to meet the situation and that the provision of nursing service would produce change.

Nursing needs defined as extra-hospital in nature are those that would not be met in the locality being studied by a hospital or nursing home and which would require service from some community nursing group, such as public health nurses, school nurses, or industrial nurses.

Method

The basis of the method employed is the use of a single nursing interview in which the interviewer decides whether the members of the family have health problems that would lend themselves to public health nursing service if it were available. The sample of families to be visited consists of a random selection of households in one county, sufficiently large to make it possible to generalize from the data and to obtain for that county an estimate of the extra-hospital nursing needs of the population.

To see how reliable this estimate is nursing service is being given by the nursing group of the county health department to all households where the interviewer considers the health problems to be amenable to nursing care. Just in case important needs are missed in the interview, another check is made by selecting at random a group of families not judged to have such nursing needs and referring them also to the health department. These follow-ups should reveal whether the needs found by the interviewer stand up in a service setting, whether the interviewer is oversensitized to needs, or whether the single interview diagnosis misses many important problems that can be discovered only with intensive home care.

In defining a nursing need, it was stated that the need should be of such a nature that the situation would be changed by the provision of nursing service. It is hoped that nursing can do something either to improve the family's ability to work with the problem or to assist, if possible, in removing it. To see whether these needs have changed a subsample is selected for a reinterview after the nurse from the health department has closed out the case if it is a referred family, or after a period of three months if the family is not referred. Obviously, this is a rough measure of change, for other things may happen in the interval which will either change the family's health situation or bring about the appearance of new needs. Nevertheless, it seems desirable to experiment with this method, since the difference that nursing might be expected to make is a major factor in determining administrative importance if needs are found.

Location of the Study

One may wonder where there is a health department willing to participate to the extent that has just been described. If one considers that the sample of households for this study is approximately 1,000 and that to be able to generalize from the findings it has been estimated that 3 per cent of the total population must be reached, then one knows it cannot be located where there is a large department.

Butler County, Pa., has a new county health department, just established in 1953 as a demonstration of a decentralized department. Last November it was voted in by the population in a

referendum that passed by an overwhelming majority of four to one. While the department was being organized, the Graduate School of Public Health at the University of Pittsburgh maintained a close relationship and assisted in every way it could. One of its undertakings was a study under the direction of the Department of Biostatistics to obtain demographic, sociologic, and health characteristics of the population to be used later as a base line for evaluation of the health department program. A complicated sampling procedure was set up that made it possible to pull the present sample without having to start from the beginning and thus saved this project many thousands of dollars. It also furnished valuable background material about the county.

Most important, the staff of the department expressed great interest in seeing this study take place in Butler County. The health officer and supervising nurse liked the idea immediately and assisted in laying the basic plans. The community has lent its support in every way and as a result it has been possible to continue even with the loss of the original health officer and supervising nurse. The County Board of Health has backed the study and this group made it possible to secure the approval of the County Medical Society, a most necessary factor since nurses would be giving service to private patients who had not originally requested this assistance. So far, there has not been a single instance of lack of cooperation from the medical group.

Through the health department's Nursing Technical Advisory Committee it has been possible to work out necessary relationships with school nurses, industrial nurses, and nurses working in the local hospital. Other community health and welfare groups have shown deep interest in the study. The newspapers and radio stations have lent every support by helping to pave the way for the interviewers when they go into the homes. The result of one newspaper story lends some human interest. When it was announced last summer that the study they had been hearing so much about was to get started at last, the next morning the study director was asked to come see a little lady who had presented herself at the health department switchboard. She said she lived 10 miles out of town in a small village and had come to town to shop that day. She wanted to be sure that the nurse would not make a futile visit to her home. When she was advised that the homes were being visited at random and there was no way of knowing right then whether she was in the group, her face fell. A question clarified the situation and it was discovered that she had a problem with a very sick niece and wanted a chance to see if something could be done to help her. She was immediately referred to the nursing service. Until she read the newspaper article she had no idea of where to turn to see if something could be done to help her with an overwhelming problem.

Butler County has an estimated population of around 104,000 and is located just north of Pittsburgh. About one-third of the residents live in urban areas, one-half in the open country, and the rest live in small villages. There are industries in Butler City, but it is primarily an agricultural section with a stable population. To meet the public health nursing needs there is a staff of seven nurses in the health department, 13 nurses work in the schools, and the industries have a few nurses. There is no voluntary nursing service so that the health department gives bedside nursing care where it is possible to do so. Because of the extra load caused by this project, provision is made in the study budget for an extra staff nurse. The nurses are expected to provide whatever nursing service is needed for the study families, regardless of the demands of

their other programs, otherwise the findings will be skewed.

Interview Schedule

The greater part of the past year has been devoted to the development of an interview schedule and a manual of instructions for the interviewers. It might also be added at this time that it took approximately 14 weeks of intensive work to pull the sample from the basic information available and to outline the segments where the interviewers would make their visits.

This interview schedule has been developed from a list of potential needs for care based on the official American Nurses' Association statement of functions for public health nurses in staff positions. Questions fall into two general groupings:

1. Questions designed to secure data relative to needs for bedside nursing care and treatment for acute and long-term illness, for pre- or posthospital care, for rehabilitation, and for diagnostic services.
2. Questions designed to secure data regarding practice, skills, knowledge, and attitudes in relation to such things as home care of the sick and ability to recognize illness, general family health practices, and family health protection, including periodic health appraisals and immunizations.

This spring a tentative schedule was developed and tested with a group of families known to the health department who were willing to be "test cases" and who represented a variety of health problems. After each visit, a detailed analysis was made of the findings and necessary changes were incorporated. When it seemed that the schedule was adequate for its purpose, it was taken to Baltimore and set up for coding. For the most part, the schedule is self-coding so it will be less expensive for other nursing groups to use, should it prove worth while. The present schedule is set up for IBM tabulation. A small part of the schedule must be finished by a coder, but a check of the entire schedule is necessary anyhow and can be done at the time the remainder of the coding is completed.

The schedule consists of two parts. The first part deals with information that is needed from any household, such as a household roster, data on the presence or absence of acute and long-term illness, immunization status, housing and sanitation problems, family food habits, and so forth. The rest of the schedule consists of special sheets that are filled out only if they pertain to the particular family; these include, for instance, maternity and newborn care, infant and preschool care, needs of the older age group, actual acute or long-term illness, and pre- or posthospital nursing care needs. There are all together 18 categories of needs.

After each category has been investigated, and the types of nursing needs have been established, the interviewer makes judgments for each applicable category about the intensity of the need (or health problem), the ability of the family to cope with this problem, and the presence or absence of nursing potential (which is defined as the likelihood that nursing can diminish the problem and/or increase the family's ability to cope with it).

In judging the intensity of the health problem the interviewer codes the findings on a five-point scale. One indicates no need, two indicates a slight need, three signifies that the need is moderate in nature, four indicates a serious need, and five means that the need is critical. For each of the 18 categories separate criteria are set up to assist the interviewer in making this judgment. As it is impossible to include every possibility, she chooses the point on the scale that most nearly fits the situation.

For example, in the category dealing with infant and preschool children, the

criteria to be used as a guide are as follows:

No Need—No apparent problems, child progressing very well, appears healthy, growth and development seems normal for age, causing parents no concern. Under medical supervision in past year.

Slight Need—Child seems to be doing well in general. Has only one or two minor problems that should tend to be self-limiting. Mother relaxed in giving care. Under medical supervision in past year.

Moderate Need—Has one problem, such as feeding or sleeping, that is moderate in nature or a combination of several problems that are normal for age, but family needs knowledge to understand and work with them. Lack of medical supervision for children one year and older.

Serious Need—Have problems serious enough to be interfering with their growth and/or adjustment or upsetting to family. For example, family concept of discipline is so strict as to interfere with child's development or security. Lack of medical supervision for children up to one year of age.

Critical Need—Extreme problems of growth and/or adjustment. In serious conflict with parents and/or siblings. Lack of medical supervision for all children.

In estimating the family's ability to cope with health problems the interviewer also records her findings on a five-point scale. Instead of having a separate set of criteria for each category, there is just one set to be used for the entire schedule. She records one of the following: unable to cope, slight ability to cope, moderate ability to cope, good ability or excellent ability. Just to give an idea of what these are like, two examples are cited, as follows:

Unable to Cope—Family appears to be entirely unable to manage its problems, through lack of knowledge or ability to use it, or is unable to do so because of marked disinterest. Unable to see needs, or refuses to make changes. Have not sought assistance in serious conflicts. Unable to follow suggestions or unable to plan.

At the other end of the scale:

Excellent Ability—Family appears to be able to meet all its own needs without additional teaching and guidance. Seeks early medical guidance and copes well with doctor's orders. Parent-child relationships in balance. Understands and carries out preventive health measures for family.

Using these estimates as a basis, the interviewer decides whether nursing visits should or should not be recommended. If she is recommending care, she then makes an estimate of how many visits she thinks will be necessary to work with the need in each category and recommends the length of time it should take, up to a period of six months.

Estimates for the Family as a Whole

After completing all estimates for each category, the interviewer then transfers this information to a summary sheet where she then sees a profile of needs, ability to cope, and recommended nursing visits by category for the entire household. She makes a judgment, for the family as a whole, of the intensity of its health needs, its ability to cope, and then decides whether nursing visits should be recommended. If the answer is yes, she estimates how many visits over what period of time, up to six months. She takes into consideration the fact that virtually all public health nursing visits are multipurpose in nature and allows for an integrative factor instead of using simple addition in coming to this decision. These estimates are the ones which the entire study is set up to discover.

At this point the reader may well ask how the families accept such a barrage of interrogation. Actually, we have been amazed at the reception given the interviewers. Recently we counted the refusals for the first 100 families and were astonished to find there had been just four unwilling to cooperate. This does not mean that it has always been easy to get a foot in the door, for when the interviewer first approaches the house she does not even have a name, and because she carries a brief case to the average housewife it probably means the ap-

proach of a sales person. It takes real salesmanship to get permission to come into the house, and the first words the interviewer utters hastily assure the respondent that she is a nurse. She tells the family she comes from Johns Hopkins University and these seem to be magic words. She then gives the purpose of the study in a simple sentence or two and seeks interest in cooperating by pointing out that by participating the family is helping its own health department and, hopefully, other health agencies throughout the country in the future. She reassures the respondent that all information is strictly confidential and that there are many questions to be asked. To alleviate anxiety about having to reveal what one does not wish to tell she then emphasizes the fact that only those questions are to be answered that the family wants to talk about. This reasurrance seems to do away with the concern of being placed in an uncomfortable position and has made it possible to ask all questions in all homes without raising undue apprehension.

It seems that farm families are happier to have the nurse come than are families living in the urban areas. Perhaps this is because visitors are rarer in the country. This is also apt to be due to the fact that in town the doorbell is always being rung by salesmen.

Another question may relate to how long it takes to complete such a formidable interview. Surprisingly enough it averages around one hour and 10 minutes in the home, but varies from 35 minutes to two hours, depending upon the size of the family and the multiplicity of problems. This sounds as if the interviews are progressing at a rapid rate, but that is not the case. Since the study stabilized itself, the nurses are averaging a little over one and a half completed schedules per day. This sounds unreasonable, but there are some problems that have not yet been discussed. One is due to the complexity of the sampling process which has not been covered in detail. Briefly, this is how the interviewer finds her families. In the urban areas she is given a map with a block outlined where she is told to start with such and such a street number and to progress around the block clockwise until she has picked up no more than six households. This is not too difficult, but in the rural areas and in the villages it is a different matter entirely. She goes out carrying a large road map, aerial maps, a compass, and a magnifying glass. On the road map and on the aerial map small sections are marked off in red. These sections are called segments. She must be sure she has the exact boundaries located and she then starts with the first household in the northwest corner of the segment and proceeds clockwise from there. Further time is needed for completing and recording the estimates before handing in the schedule.

Another question in the reader's mind may be: How many of the households with nursing needs are being referred to the health department? At first a large number were referred, but this number has fallen off a bit as the study has progressed. It has been fascinating to see how referrals seem to be influenced by the background of the nurse and by her concept of what public health nursing should be. Study advisers keep pointing out that there is such a thing as interviewer bias that cannot be wholly eliminated, but it does have to be faced, and if at all possible the method itself should be sharpened to negate as much of it as possible. There seems to be more difference between interviewers in the area of recommending nursing visits than in any other part of the schedule. One interviewer is consistent in recommending very few households for any nursing service, but when she does the families tend to have serious problems and she suggests intensive care over a long period of time. Another recom-

mends considerably more of the households, including more families presenting moderate or slight needs. She tends to recommend fewer nursing visits over a shorter period of time. Does this reflect a basic difference in philosophy? Perhaps so, for it may mean that one feels that the more serious the need, the more nursing is needed while the other thinks a health program should be working with the slight and moderate needs to keep them from becoming more serious.

Recently part of a consistency check was completed on 20 interviews where two interviewers visited the same households with one nurse conducting the interview and both recording separately what was seen and heard. The results were then tabulated and some of the findings were most gratifying. The greatest concern was whether the method was tight enough to make it possible for two people to arrive at fairly consistent estimates for the intensity of need, ability to cope, and number of visits recommended for the family as a whole. Three interviewers were involved in this check. In every one of the 20 families except four the estimates for intensity of need and ability to cope were identical. The differences were of only one digit which the statisticians have assured us are not significant. There were more differences in number of visits recommended and more of these differences were significant. There is more variation in the estimates for separate categories. This pointed out the need for giving more direction in certain areas, noticeably family food habits and the family's need for diagnostic and medical care. By and large, the estimates for the intensity of need are more consistent than is the measurement of the family's ability to cope, though the latter is coming out better than had been expected.

In summarizing this section on the interview schedule it is important to point out that a biostatistician who looked at these interesting differences advised us to look more critically at the schedule so as to make it as foolproof as possible in helping the interviewer to come to an accurate judgment on intensity of needs and ability to cope with them. These are the most critical judgments to be made and should be arrived at in the same way by these interviewers, by any others who may join this study or take part in other studies that may be made in the future. He justified this advice by pointing out that communities other than Butler County have the right to decide what emphasis they wish to make in planning programs and that philosophy is bound to vary from one place to another. If it is possible to give them a tool that will help in assessing their basic needs, then they can make the decision on how to attack the problems. This sounds like excellent guidance and continued efforts will be made to further refine this part of the method.

Finally, there is one problem we still have. It has been extremely difficult to stimulate enough interest from public health nursing leaders to be able to recruit the necessary personnel. We have been most fortunate in finding the women who are working with the study and they have been doing far more than they were hired to do in the first place. They have worked with the tedious job of pulling the sample, have actively participated in the development of the schedule, and in writing the manual. Indeed, these would not be in nearly as good shape if they had not argued each point every step of the way. But to do the whole job in the allotted time more interviewers are needed. One of the present nurses has repeated over and over how much more meaningful her recent year of graduate study would have been if she had had the opportunity to work with such a study first. Let it be said right now that we would not have the present interviewers if several nursing leaders had not seen what this

opportunity might mean to one of their group and referred them. But, by and large, there must be a fear of research itself that has to be hurdled before we in public health nursing take our rightful place with the others who are looking at themselves and making program adjustments based on objective evidence.

Since only 150 of the 1,000 households have been interviewed as of November 9, 1957, it remains to be seen whether this particular study has any merit. If by happy chance it does prove to have some usefulness, we will have taken one more step forward in the quest for the public health nursing program that will be able to meet the basic needs of our people. If it is successful, it will be because of the concerted effort of many people from various disciplines. Most of all, it will be due to the cooperation of the many families who have welcomed the interviewers and the nurses from the health department with enthusiasm. They see this as an opportunity to join hands with professional people in raising the health status of their community.

ACKNOWLEDGMENT—This project is being conducted by the School of Hygiene and Public Health of Johns Hopkins University and the principal investigator is Ruth B. Freeman, associate professor of public health administration, Division of Public Health Nursing, Johns Hopkins University School of Hygiene. Her very able guidance at the various stages in development of the project has been of inestimable value. Furthermore, the project represents the joint effort of other faculty members at Johns Hopkins University. Guidance and encouragement have also come from the Graduate School of Public Health at the University of Pittsburgh where the author has been given valuable support by the dean and his faculty. Other nurses, nursing organizations, and health departments have joined in counseling the study director.

Miss Mickey is associate professor of public health practice (nursing), Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pa., on leave of absence and a student at the Johns Hopkins School of Hygiene and Public Health, Baltimore, Md.

This paper was presented before the Public Health Nursing Section of the Amercian Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 12, 1957.

Radiological Health and Air Pollution Workshops at Minnesota

Radiological health and air pollution are the subjects of two, two-week workshops to be given by the University of Minnesota School of Public Health in cooperation with the Public Health Service. The dates are, respectively, July 21–August 1 and August 4–15. Enrollment is limited to 25 in each. Tuition is $52.50 for one or $64.50 for the two. Those with academic qualifications are eligible for three hours of credit for each workshop.

Application form and further information from School of Public Health, 1325 Mayo Memorial Bldg., Minneapolis 14, Minn. Housing information from Director of Student Housing, 204 Eddy Hall, or for dormitory housing to Pioneer Hall or Centennial Hall.

International assistance to developing countries for development, improvement, and extension of maternal and child health work is discussed. A few commonly encountered problems in maternity care and in programs for infants and children are reviewed. The conclusion is drawn that developing countries must develop MCH programs to fit their circumstances.

MATERNAL AND CHILD HEALTH IN THE DEVELOPING COUNTRIES—PROGRESS, PROBLEMS AND PROMISE

Jessie M. Bierman, M.D., M.P.H., F.A.P.H.A.

THE PREOCCUPATION with stock taking and evaluation which in recent years has characterized public health practice in the United States has spread to the international health agencies. The UN agencies concerned with health are now reappraising their efforts after a number of years of rapid expansion on uncharted courses. During the early years there was a great push to get programs started, to recruit personnel, and to show results. As was true in this country in the early days after the passage of the Social Security Act, the efforts sometimes resembled Stephen Leacock's man on the horse who rode off in all directions at once! But much has been learned from the experience. A recent stocktaking exercise in international maternal and child health was the review of the joint World Health Organization/United Nations Children's Fund activities made at the request of the Joint Committee on Health Policy.[1] After considering this review of the overall program at its meeting in Geneva last May, the committee recommended that further studies of selected aspects of maternal and child health activities be presented to the Joint Committee every two years, thus establishing a pattern for continuing evaluation of the assistance programs.

This paper describes briefly the principal methods used by WHO and UNICEF to assist governments in improving their maternal and child health services, with some of the evidence of progress to date, and discusses some requirements for continuing progress in the future.

Emphasis on the Training of Personnel

From the beginning both WHO and UNICEF have placed a high priority on assistance in the training of personnel. From 1947–1956, WHO awarded 601 fellowships for study abroad of various aspects of maternal and child health. These included public health training with major emphasis on maternal and child health, courses in child health and puericulture, pediatrics and obstetrics, and periods of observation of various maternal and child health services. Of

the 92 maternal and child health fellowships awarded in 1956, 71 went to physicians and 21 to nurses who came from 44 countries or territories and studied in 27 countries.

The broad scope of the fellowship program is indicated by the figures for fellowships awarded in all fields. Students came from 149 countries or territories and studied in 113 countries. Sixty-five per cent are physicians, 12 per cent nurses, 6 per cent sanitarians, and 17 per cent represent other fields.

Another approach to training is through assistance given to the establishment and improvement of training facilities within countries. For this purpose, WHO has assigned international personnel to work with the governments and UNICEF has provided the needed equipment, supplies, and transportation to the training institutions with stipends for certain categories of trainees.

Table 1 summaries the distribution by countries of three kinds of "within-country" assistance by WHO. Some 40 MCH demonstration and training projects have been established in 29 countries (column A). In these WHO has provided a team consisting of an MCH medical officer and one or more public health nurses and midwives. These teams, working with their counterparts provided by the governments, establish demonstration MCH units which then serve as centers for orientation and refresher courses for professional personnel in MCH and for the training of auxiliary health workers. In a second type of training project (column B) experienced nursing and midwifery tutors have been provided to help 34 countries to establish new training institutions or to improve existing ones. Several countries have had such assistance in more than one place. Third, medical schools in 11 countries have been assisted to establish or to upgrade departments of pediatrics (column C). In all three types of projects the country provides counterpart personnel who work with the international staff and carry on when the latter are withdrawn after two or more years. A fourth type of maternal and child health assistance has been the provision of short-term consultant services in various aspects of MCH (column D). The table indicates only the parts of the total WHO program designated specifically as MCH assistance. It is recognized that several other types of assistance are directly related to maternal and child health. In 1956 roughly one-fourth of WHO funds expended in the assisted countries were for MCH, nursing and midwifery, and nutrition services. And, of course, children are the chief beneficiaries of programs of environmental sanitation and of control measures for endemo-epidemic diseases.

Large numbers of auxiliary personnel, such as assistant midwives, nurses, and sanitarians, have been provided with short periods of simple training so as to facilitate as rapidly as possible the extension of minimal maternal and child health services. As a result of the training programs, thousands of new maternal and child health centers have been established, especially in rural areas. UNICEF has provided equipment for the centers, transportation for supervisory personnel, kits for nurses and midwives, and dry milk, vitamin supplements, and drugs for use in the centers. During the past five years more than 40 countries have received this assistance from UNICEF.

Despite the fact that many thousands of health workers have been trained and millions of mothers and children are being served in newly established health centers and in their homes, only a small proportion of the population in many countries receive even the minimal services rendered by auxiliary personnel and everywhere there is need to improve the quality and broaden the scope of the services. The latter can be brought

Table 1—WHO Assistance in MCH to Countries, 1948–1956 "Within-Country" Training Projects and Consultant Services

Country by Region	A	B	C	D
Southeast Asia				
Afghanistan	1	2	1	
Burma	1	2	1	
Ceylon	1	2		
India	7	6	6	3
Nepal		1		
Indonesia		2	1	1
Thailand	2	2		
Western Pacific				
Brunei		1		
Cambodia	1	1	1	
Hong Kong	1			1
Japan		1		2
Malaya		3		
North Borneo		1		
Philippines	1	1	1	2
Sarawak		1		
Singapore		1	1	
Taiwan	1	1		
Viet-Nam	1			
Eastern Mediterranean				
Egypt	1			1
Ethiopia	1			
Iran	1	1		
Iraq	1			1
Israel		1		1
Jordan	1	1		
Lebanon	1	1	1	1
Libya	2	1		
Pakistan	4	2	1	
Syria	1	1		
Tunisia		1		
Sudan		1		

Country by Region	A	B	C	D
The Americas *				
Bolivia	1	1		
Brazil				1
Chile	1	1		
Colombia		1		
Dominican Republic	1	1		
Ecuador	1			
El Salvador	1			
Guatemala		1		
Haiti		1		
Mexico	1	1		1
Panama	1			
Paraguay	1		1	
Peru	1			
Uruguay	1			
Europe				
Greece				4
Italy				1
Spain				1
Turkey	1	1		2
Yugoslavia				5
Austria				1
Africa				
Nigeria				1
LaReunion		1		
Mauritius		1		

* MCH integrated with rural health projects.
A—MCH demonstration and training projects.
B—Assistance to nursing and midwifery training institutions.
C—Assistance to medical schools.
D—Short-term physician consultant services.

about only as the numbers of adequately trained professional workers increase and the governments are able to establish and maintain posts for supervisors, consultants, instructors, and program directors. It has to be remembered that the international aid constitutes a very small part of the total effort being made by the governments who are straining their resources to bring about improvements on many fronts.

MCH Leadership Is Improving

Evidence of the increasing recognition of the importance of maternal and child health by the assisted governments is the creation of MCH units in the national health administrations. Of the 53

countries which have had MCH assistance from WHO, 28 have now established such units or have made provision to do so this year. Twelve of these have been established within the past five years. Greatest progress in this regard has been made in Southeast Asia. Although all these MCH units are as yet inadequately staffed, it is encouraging to note that there is at least one physician at the top planning level whose principal responsibility is maternal and child health.

With the recent creation of a post for a maternal and child health adviser in the African region, WHO has now made provision for nine permanent positions for MCH physicians—two at headquarters, two in the Southeast Asia region, and one in each of the remaining regional offices. Six of the seven physicians presently engaged have had wide experience in international health work and most have served in more than one region. Furthermore, the maternal and child health assistance projects in the countries are increasingly benefiting by the services of international personnel who have had previous experience in developing countries and by their own trained nationals.

Some Requirements for Progress in the Future

Improving leadership in the countries and the building up of a cadre of seasoned staff in WHO and UNICEF are essential to, and give promise for, continuing progress. For progress in the future will be measured not only in terms of numbers of personnel trained and of services established, but in terms of the results achieved in reducing the major health problems of mothers and children in the assisted countries. This means that the more or less empiric approaches of the past must be replaced by more precise methods. It will be necessary to devote more effort to studying the nature and extent of the problems and possible resources for dealing with them. More mortality and morbidity data and specific knowledge concerning the prevailing endemic diseases affecting mothers and children will have to be obtained for each area. More specific information on growth and development patterns of children, feeding practices, beliefs and traditions concerning child bearing and child rearing—all are needed to provide a better basis for sound program planning and to give the necessary base line information for the evaluation of future progress.

Observation of present practices in many areas indicates the need for reorienting existing service and training programs and for developing new approaches better suited to the needs and resources of the assisted countries. Too much effort has been expended in setting up prefabricated Western-type programs which are ill-suited to the situation. This reflects both the influence of international personnel inexperienced in dealing with the problems in developing countries and the inadequacies of much of the training received by nationals at home and abroad. Only the scientific principles of Western public health practice are universally applicable, not the program patterns. Our present-day programs are even less applicable to the assisted countries today than they would have been here a hundred years ago.

Both international and national personnel in leadership positions need a thorough knowledge of epidemiological methods for application to the study of maternal and child health problems and of the "problem-centered" approach to program planning. They also need an understanding of the influence of socioeconomic and cultural factors on the patterns of health and disease and on all measures undertaken to bring about improvements. One way to point up

the vast differences in socioeconomic development is to compare infant mortality rates in the developing countries with the past experience of the more developed countries. Sweden has the longest series of data on vital statistics, going back to 1750 [2] when her infant mortality rate was in the neighborhood of 200. Similar or even higher rates still prevail in a number of countries in Africa and the Eastern Mediterranean. Between 1810 and 1875, Sweden's rates fluctuated around 150—the present-day rates in much of Asia. By 1900 the Swedish rates were around 100, the figure currently reported by a number of countries in Central and South America and other widely scattered areas.

The poor social and economic situations and the resulting health problems which exist in many countries today are probably similar to those which prevailed in the past in the more developed countries. Jelliffe has pointed out that while the exotic tropical diseases are still important factors in widespread areas, the present-day problems in the developing areas are due more to the persistence of such nonexotic problems as inadequate or absent systems of excreta disposal, squalid, overcrowded housing, and inadequate, contaminated water supplies, all of which lead to an endless procession of parasitic and infectious diseases. To these must be added the pervasive effects of undernutrition and malnutrition and the tenacious influence of cultural factors on the whole pattern of living.[3]

MCH Programs Must Be Broad in Scope

In areas with high prevalence of malnutrition and of endemic and epidemic disease, maternal and child health programs must be broad in scope and prepared to deal with the general health needs of mothers and children, as well as with the special needs centering about the reproductive and growth processes. Children under the age of 15 and women of child-bearing age constitute over 60 per cent of the population in developing countries. Because of their natural appeal, services for mothers and children are usually among the first permanent health services to be established. They offer an incomparable avenue for the introduction of preventive services and health education for individuals and serve as a focal point around which family health services, sanitation, and disease control programs can be developed. Much attention is currently being devoted to integrating existing maternal and child health services into general health programs particularly in Asia and to incorporating maternal and child health as an integral and important part of newly developing general health programs in Latin America.

Problem-Centered Approach to Maternity Care

Following is an example of how the problem-centered approach might work in maternity care in a fairly typical rural setting. Puerperal sepsis and hemorrhage are the principal causes of maternal death in most developing countries. Sepsis results from the unskilled ministrations of traditional birth attendants who deliver most babies. Hemorrhage is related to the almost universal prevalence of anemia among women of child-bearing age. Most deaths occur suddenly during the third stage of labor, the result of minimal blood loss which is often fatal in women with hemoglobin levels of 20–50 per cent delivered in a hut by an unskilled attendant. The nature and etiology of the anemias require more study, but from available evidence it seems likely that major factors are the lack both of iron and of sufficient protein in the diets of the women.[4, 5] Intestinal parasites also play a role. Furthermore, many of the women suffer

from various endemic and epidemic diseases common to the community.

The health facilities consist of an MCH center serving a large rural area. The staff comprises a trained midwife and one or more auxiliary nurse-midwives who serve several subcenters in outlying areas. Under such circumstances it appears that the best use of the resources would consist of the following:

1. Establishment of simple training for the traditional birth attendants in which they are taught how to avoid introducing infection into the birth canal and in the cord area of the newborn, to bring their patients to the health center for prenatal care, to recognize serious complications and to refer them, and to enable the attendants to feel that they are members of the health center team and thus make them willing to accept supervision. UNICEF has been assisting such efforts by providing training stipends for the attendants and delivery kits for those who complete the training course and are found to be reliable.

2. Concentrating in the prenatal clinics on the vigorous treatment of anemia, on nutrition, and on health education. Because of the high prevalence of anemia and undernutrition, iron therapy and supplemental feeding are offered routinely to all patients, thus saving the time which would be required to perform hemoglobin estimations. Antihelminth therapy is also given according to a prescribed routine because ascariasis is prevalent. This history of previous pregnancies and physical signs help the workers to identify certain other problems. Food demonstrations and nutrition education with emphasis on iron- and protein-containing local foods are carried out in the centers and in the homes. These are important, not only for improving the mother's health and that of the fetus, but in helping to insure successful lactation upon which the baby will have to depend for many months after birth.

Under the circumstances outlined, other usual routines of prenatal care and routine attendance by the trained staff at confinements would be of secondary importance and should not be allowed to interfere with the services aimed at the major problems. There is always danger of any staff becoming enmeshed in a maze of routine procedures. Where the needs are so great and the resources so limited as they are in the developing countries, it is particularly distressing to see this happen. Unfortunately, it is rather common in similar situations to find the midwife devoting most of her time to routine delivery care and the remainder to routine prenatal procedures focused primarily on the pregnancy—not the patient. UNICEF iron tablets and other dietary supplements and drugs often are not utilized. This is all a reflection of the inadequacy of traditional training in midwifery as preparation for work under these circumstances. The training of all categories of MCH personnel needs to be reviewed and revamped in the light of requirements in the field, the recruits available, the types of personnel needed, and their utilization on the job.

Problems Among Infants and Young Children

In nearly all assisted countries services for children have received less attention than those for mothers. And the interest of staff and availability of services tend to decrease with the advancing age of the child. Young infants have had more services than older infants and the child of preschool age is largely neglected. This is particularly unfortunate in these countries because the major preventable health problems—undernutrition, malnutrition, intestinal infections, and communicable diseases begin during the weaning period and continue to

Table 2—Comparisons of Reported Neonatal and Postnatal Mortality Rates and Deaths Under One and One to Four Years of Age for Selected Countries, 1953

Country	A	B	C	D
Egypt *	179	1:4	81,364	64,031
India	123†	...	808,677	739,938
Yugoslavia	116	1:2	56,268	17,601
Chile	114	1:1½	26,594‡	7,415‡
Guatemala	103	1:2	16,108	20,686
Peru	100	1:1½	28,226	18,834
Portugal	96	1:2	19,310	8,843
Mexico	95	1:2	120,117	99,889
Costa Rica	83	1:2½	3,956	1,692
El Salvador	83	1:2	81,048	7,096
Ceylon	71	1½:1	22,869	17,118
Singapore	67	1:1	3,658	1,452
Thailand	65	1:3	39,397	28,273
Jamaica	64	1:2	3,280	1,565
Puerto Rico	63	1:1½	5,342‡	2,638‡
Spain	59	1:1½	34,552	9,044
Italy	58	1:1	49,076	11,550
Panama	54	1:1½	1,687	1,237
Japan	49	1:1	91,424	50,516
France	42	1:1	33,919	6,239
Canada	35	1½:1	14,764	2,444
Finland	34	1½:1	3,105	718
United States	28	2½:1	108,405	18,235
England and Wales	27	2:1	18,324	3,204
Australia	23	2½:1	4,713	1,205
Netherlands	22	2:1	5,048	1,485
Sweden	19	3:1	2,064	478

SOURCE: WHO Annual Epidemiological and Vital Statistics 1953 and 1954 (Geneva, Switzerland, 1956 and 1957).
A—Infant mortality rate (rates per 1,000 registered live births).
B—Ratio of neonatal to post neonatal rates.
Reported number of deaths:
C—Under one year.
D—One to four years.
* Localities with health bureau.
† 1949.
‡ 1952.

be prevalent through the second and third years of life (see Table 2).

Column B of Table 2 shows that in countries reporting infant mortality rates about 100 or higher the ratios of neonatal mortality to postneonatal mortality run around 1:2 and up to 1:4 in those with the highest infant mortality rates. In countries where rates have fallen well below 100 the ratios are in the order of 1:1 and only where the total rates have reached 35 or below do the neonatal mortality rates exceed those of the postneonatal rate. Under these circumstances there appears to be little justification for concentrating services on the neonate at the expense of the older infant and young child. The significance of the ratios in the countries with high total infant mortality rates is even greater when one realizes that the neonatal mortality rates are very high.

Verhoestraete has pointed out the sharp contrasts in mortality rates between the developed and less developed countries which are particularly great in the case of children in the age group from one to six years.[6] From columns

C and D of Table 2 it can be seen that some countries report about as many early childhood deaths as infant deaths.

While there are no figures on morbidity it is interesting to speculate on the amount of illness there must be among infants and children in these countries. Sinclair-Loutit of the WHO staff has projected the daily cohort of illnesses of different case-fatality rates which must occur among infants in countries with high infant mortality rates.[7] In a country with a rate of 100 there will be among 1,000 infants 27 new minor illnesses daily (case fatality of 1 per cent) or 10,000 cases of illness a year. For diseases with a case fatality of 10 there would be 1,000 cases a year. In countries where the mortality rates are 200 or 300 these figures would, of course, be doubled or trebled. This device simply serves to impress on one the enormous burden of illness borne by infants in these countries. The amount of illness among young children is likewise staggering. Severe malnutrition reaches its peak prevalence during the early childhood years. About 85 per cent of diagnosed cases of protein malnutrition occur in children aged one to three.[1a] The dangers from other nutritional disorders, and from enteric infections and intestinal parasites, are also greater than during the first year of life when the child receives milk in his diet and a greater degree of protection from an environment full of hazards. The nutritional and enteric diseases responsible for the major share of deaths among young children are all preventable through improved nutrition, sanitation of the environment, and the education of mothers in child care. Under these circumstances, "well child" services have little meaning and services limited to young infants make little sense. The responsibilities and opportunities of child health programs lie in strong educational and nutrition services and in providing a combined program of therapeutic and preventive care focused on the common endemic diseases and continuing throughout infancy and early childhood.

In developing countries the training of all health workers—from physicians to auxiliaries—has been particularly weak in pediatrics and nutrition. Recognizing this fact, both WHO and UNICEF have taken steps to call attention to the importance of pediatric training and to provide more assistance in this area. Two surveys of pediatric education assisted by WHO have recently been completed in Latin America and in Western Europe. A study group on pediatric education was convened last year to consider ways of extending and improving the teaching of pediatrics with special emphasis on the developing countries.[8] Another significant development is the decision made by the UNICEF Executive Board last year to extend its assistance to medical schools so as to enable them to expand and improve the training programs in pediatrics and preventive medicine. In the plans being developed jointly by UNICEF and WHO the newly established or enlarged pediatric departments will serve as focal points for research in child health and for the teaching of pediatrics to nurses and midwives, as well as to physicians. They are envisaged as centers for refresher and continuation education of MCH personnel and will provide graduate training for teachers and supervisors of field programs. It is hoped that the teaching methods, the content, and the research will be geared to the needs of the developing countries with major emphasis on prevailing nutritional problems, common endemic diseases, and on preventive measures.

The next Joint Health Policy MCH Review is to be focused on child health activities in MCH centers. Consideration is being given by WHO, in cooperation with UNICEF and the Nutrition Section of the Food and Agricultural

Organization, to various means for increasing the effectiveness of nutrition education in centers and incorporating nutrition content into the training of all health workers.

The problem of enteric diseases among children has been the subject of epidemiological studies and regional conferences in Latin America. Similar activities are planned for other areas. Currently field investigations are being carried out to determine whether health workers with minimal training and facilities can be successfully taught the technics of oral rehydration. If they can, the lives of many infants and young children suffering from severe enteric infections could be saved.

Health Services for Children of School Age

Although there is as yet very limited provision of health services for the school-age population in the developing countries, interest in this field is growing. In this as in other aspects of maternal and child health it is impossible to envisage comprehensive programs for some time to come. Unfortunately, the beginnings have often consisted of attempts to provide medical inspections before there have been any real possibilities for providing follow-up and corrective care. Under these circumstances the inspections become perfunctory routines of little real value.

A more realistic approach now receiving emphasis centers about the unequalled opportunities which schools offer for health education. If the schools could provide opportunities for children to experience living in a healthful environment and could give practical health teaching centered around sanitation, nutrition, and the transmission of disease, they could break the chain of ignorance concerning health that binds one generation to the next. The starting points are teacher education in health and the provision of sanitary latrines and safe water supplies in schools and teacher training institutions. With a little help the teacher can begin health education under the simplest circumstances. Ways for bringing about improvements in the preparation of teachers in the health field are currently being studied by WHO in collaboration with UNESCO. It is hoped that UNICEF assistance may be available to help communities provide safe water and excreta disposal facilities in their schools. The installation, maintenance, and proper use of these facilities and their relationship to health can form the basis of practical and meaningful teaching units at all levels. Likewise, the distribution of UNICEF dry milk to schools, which is already fairly extensive, offers an excellent practical starting point for nutrition education, especially when supplemented by local food products and school gardens.

These are but a few ways in which the governments, WHO, and UNICEF are working together to improve the chances of mothers and children for life, health, and new hope. Although in most of the countries only a beginning has been made in achieving the common objectives which all peoples have for their mothers and children, it is a substantial beginning. Without doubt, the amount of progress is greater and affects more people than ever before in a similar period of time. And in the process of studying common problems, exchanging information and ideas, working out differences, and arriving at courses of action progress is being made toward the greatest goal—the building up of traditions of a world community.

Summary

A review of joint WHO/UNICEF assistance to developing countries in MCH indicates that good progress has been made in the training of personnel

and in the extension of minimal services. Through 601 WHO fellowships, MCH workers from many countries have received professional training abroad. Governments have been assisted to establish or to extend and improve their own training facilities for personnel through 40 MCH demonstration and training projects (29 countries), and assistance to some 64 institutions for the training of physicians, nurses, midwives, and auxiliary health workers (37 countries). Greatest emphasis has been placed on the training of auxiliary personnel. There is increasing recognition of the need for increasing the training of professional personnel for supervisory and leadership posts in order to better utilize the auxiliaries and bring about improvements in the quality of services.

With improving MCH leadership in the countries concerned and the building up of experienced staffs in the international agencies, it will be possible to substitute scientific methods in the development of training and service programs for the more empiric approaches based on adaptations of Western programs. Among the most important aspects of Western public health practice which are transferable are epidemiologic methods for the study of health problems and the problem-centered approach to the development of training and service programs. The patterns of most present-day Western MCH programs do not fit the needs and resources of the developing countries.

Consideration of a few commonly encountered problems in maternity care, in programs for infants and young children, and in school health in the assisted countries illustrate some directions which future developments may take.

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Dr. Bierman is professor of maternal and child health, University of California, School of Public Health, Berkeley, Calif.

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Wisconsin Poison Information Center

A Poison Information Center has been set up in the Department of Pediatrics, University Hospitals of Madison, Wis. It has the card file of some 250,000 potentially poisonous substances supplied and kept up to date by the National Clearing House for Poison Control Centers of the Public Health Service. Special consultants are on call from the center from university departments such as agronomy, biochemistry, botany, entomology, mucology, pharmacology, and toxicology.

Association of a medical school with a health department in teaching and research can be of great mutual benefit. The report presented below describes the significance and value of such an arrangement in pediatrics.

RECIPROCAL BENEFITS FROM COMBINING ACADEMIC PEDIATRICS WITH THE CHILD HEALTH PROGRAMS OF A HEALTH DEPARTMENT

John A. Lichty, M.D., F.A.P.H.A.

In 1947 Dr. Harry H. Gordon, then chairman of the Pediatrics Department of the University of Colorado Medical School, and Dr. Roy L. Cleere, executive director of the Colorado State Health Department, planned to strengthen the ties between the medical school and the Health Department, in accordance with the suggestion of McIntosh,[1] by having a member of the full-time pediatric faculty serve as pediatric consultant to the State Health Department. Perhaps it is of more than historical interest that one of the stimuli for this plan was lack of sufficient money in either organization to pay an adequate full-time salary for a well trained pediatrician. However, both men saw the possible advantages of having one person continually working in academic pediatrics and the pediatric aspects of public health. This paper outlines briefly some of the ways in which the interests and problems at each end of this "two-way street" have received benefits from those at the other end.

To illustrate some of the ways by which the interests and programs of the Colorado State Health Department have offered grist for the mill of medical education, in the field of child health, a close analogy between public health and clinical medicine will be considered. Today it is generally agreed that medicine can be taught more effectively by using actual cases rather than by giving comprehensive, abstract lectures on disease. The public health aspects of medicine can be taught equally well by using, as case material, individual hospital nurseries, local communities, or even certain health problems of the entire state. It is often one segment of a community, rather than a particular organ system of a person which is considered to be responsible for poor general public health (McGavran [2]) and accurate diagnosis followed by intelligent therapy is just as important for that community as in the case of an individual patient. The practicing physician is, or should be, concerned with both types of illness.

Perhaps the best Colorado example of this type of public or community case came from a recent state-wide study of neonatal mortality.[3] Interest in this "illness" might never have developed to its present state if a full-time member of the Pediatric Department, serving as a consultant to the State Health Department, had not been squarely confronted with the consistently poor neonatal mortality record for Colorado as compared with the United States average

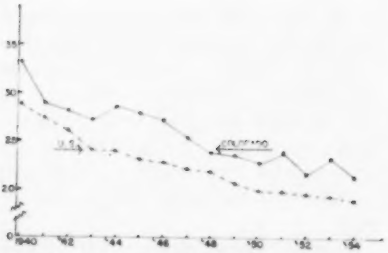


Figure 1—Neonatal (Newborn) Mortality Rates, Colorado and United States (Deaths Under Age One Month per 1,000 Live Births)
Colorado State Health Department

(Figure 1). This situation has been presented as a public health case to develop student-group discussion regarding the possible factors involved. It may have "brought home" the importance of improving newborn care more effectively than other general ways of stating the problem. The strongest stimulus for the pediatric residents (and senior staff) in improving newborn care came when they learned that an analysis of this neonatal mortality using the hospital of birth showed that one of the two University of Colorado Hospitals had the poorest record in the state.

In trying to teach the medical students a concept of school health, actual experience in a public health department can be effectively applied. School health has always been hard to define and pediatric textbooks say very little about the principles and problems involved in trying to develop a good school health program in the average community. When one has actually tried to assist local groups in the cooperative planning required to make the school's responsibility complement rather than interfere with a continuing family-physician relationship, many practical points are uncovered which can be passed on to medical students and the house staff. In turn, the future physician can be instructed regarding his possible responsibilities and activities in the field of health instruction and health service to school pupils.

In discussing this problem in the medical school practical examples can be cited from local experience and the appreciation of proper school health records is enhanced by having copies of Colorado's cumulative school health record available. A comparison of school health programs with those of industry [4] has been utilized to emphasize the serious health responsibilities which any community faces when it requires all school-age children to leave home and live in a school building day after day.

Each year at the medical school an effort is made to have at least one pediatric grand rounds devoted to a discussion of school health, with presentation of actual cases and problems by the physicians in charge of the health program of the Denver public schools.

Sound instruction regarding the importance and effectiveness of routine active immunization of young children is a basic part of academic pediatrics.

It would be carried on irrespective of any close association with a public health department. However, at the University of Colorado it seemed advantageous to have the teaching include some actual community experience relating to the application of this established safeguard for health. Since the Colorado State Health Department and the State Medical Society launched a state-wide program for "routine" immunization in 1947, the Communicable Disease and MCH Sections of the Health Department kept careful records of the reported cases and deaths of diphtheria and pertussis for a few years preceding 1947 and the ensuing years. The results were reported at an annual meeting of the State Medical Society together with a review of the cooperative responsibilities of the two organizations in the program.[5] This material (Figure 2) has served quite effectively in showing students how the principles of scientific

Table 1—Delayed Routine Immunization, Questionnaire Study of First-Grade School Children, Colorado 1955–1956

	Smallpox	DPT
Total first graders reporting	11,778	11,778
Not immunized	2,747	2,163
Immunized	9,031	9,615
Immunized before 1 year of age	3,175	4,410

medicine can be successfully applied on a scale which is broader than that of an individual physician and his patient.

As a corollary, a questionnaire study carried on by the Colorado Congress of Parents and Teachers pointed to the lack of success in persuading parents and physicians that immunizations should be completed in the first year of life and not in the first grade in school. This study was stimulated and guided by members of the MCH Section, including the pediatric consultant, of the State Health Department, and data from its report (Table 1) have been used as public health case material in teaching medical students.

Similar studies of the incidence of heart disease in the sixth-grade school children of the State of Colorado [6] (Table 2) and of the state's mortality from appendicitis [7] (Figure 3) have served as teaching material for increasing the student's interest in these diseases. In each instance the study was prompted by the association of a pediatric faculty member with the various divisions and programs of the State Health Department.

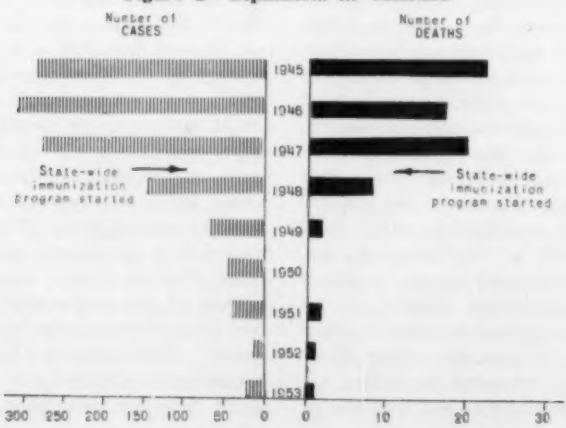
It might seem strange not to use Colorado's Premature Infant Program as an example of the teaching benefits derived from a comprehensive public health program. Actually this is one of Colorado's best examples of full cooperation between Health Department services and the education of students,

Table 2—Heart Disease Among Colorado School Children, Sixth Grade Sample, 1950–1951

	No.	Per cent
Functional murmur only	4,094	36.4
Definite heart disease*	105	0.94
Rheumatic heart disease	74	0.66
Congenital heart disease	29	0.27
Combined and other heart disease	2	0.02
Suspected heart disease (all types)	63	0.56

* Condition not previously diagnosed in 50 per cent.

Figure 2—Diphtheria in Colorado



residents, and practicing physicians. However, this program supplies clinical cases directly to the medical school by paying for a large part of their care at the Colorado General Hospital in much the same manner as the Crippled Children's Progam in Oregon furnishes patients to the university hospital for the instruction of students and house staff. The purpose of the present report is to show that benefits can come to a medical school curriculum from a public health department's programs even in situations which do not involve referring patients directly to the pediatric service.

It scarcely seems necessary to discuss ways in which direct benefits can come from a medical school to a health department. One of the principal purposes of a health department is to offer the best practical information and services for improving the health of groups of people, rather than that of an individual patient. The success of any public health program, however, is based in part on the same knowledge of the continuous advances in scientific medicine which is so necessary for sound private practice. One of the most encouraging signs in the progress of public health today is the closer association of health departments with the teaching and research programs of the various departments in medical schools. This is particularly pertinent in the field of pediatrics, because preventive medicine plays such a prominent part in improving the health of children from birth through adolescence.

As a specific example in Colorado,

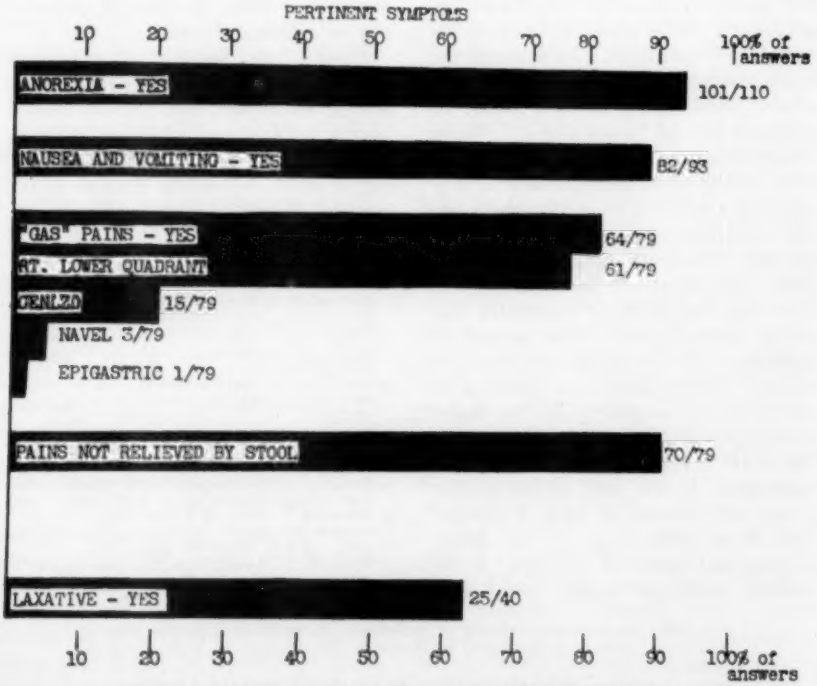


Figure 3—Colorado Deaths from Appendicitis 1947–1951
(A Physician Questionnaire Study)

the Health Department's supervision and service to the newborn nursery of any community hospital may be cited. The position of pediatric consultant has fostered a closer association of the physicians, nurses, and hospital administrators in the State Health Department with the university hospital. These Health Department personnel are kept constantly informed of the detailed changes and developments in the operation of its newborn nursery. Here the problems of when and how to feed a baby, what to offer in the way of fluids, oxygen and antibiotics, and how to keep the nurse's daily duties practical as well as up to date are constantly being explored and retested. The information gained from this continuing process of orderly academic upheaval can be incorporated into the interpretation of the Health Department's official plans and regulations for nursery operation. As a result, the routine inspections of community hospitals become much more a matter of guidance than of "police action." When a particular trouble spot is found in the state, it has often been possible to suggest that a teaching team from the medical school might present a one-day refresher course at that community hospital. This is greatly facilitated by the fact that the pediatric consultant can recruit his colleagues in the schools of medicine and nursing to comprise such a team. Unpleasant local statistics of mortality and morbidity can be woven in with positive suggestions for improving nursery care, with a minimum of resentment on the part of the professional staff attending such a session. Also frank admissions of the inadequacies and unsolved problems at the medical center are always included in the presentations. True, this could all be accomplished even if the personnel of a health department were entirely separate from the faculty of the medical school, but Colorado's present plan works almost automatically.

Similar examples might be cited in the fields of communicable disease control, health education, and the crippled children's programs. Any activity which involves the public health programs for children can benefit directly or indirectly from this dual position. Of course, the pediatric consultant derives the geatest personal benefits from this association with the medical school faculty. He is constantly exposed to all types of intellectual bombardment and it is his responsibility to pass on the numerous pieces of pertinent information to his many colleagues in a health department either by formal presentation or informal discussion.

Finally, the leaders of state and county medical societies are much more willing to respect and approve public health suggestions affecting children which are known to have the direct backing of some responsible member of the pediatric faculty of a university.

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Dr. Lichty is associate professor of pediatrics, University of Colorado Medical School, and pediatric consultant to the State Department of Public Health, Denver, Colo.

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"Know your community" is generally accepted as a prerequisite for public health action. There is, however, still a considerable gap between preachment and practice. One way of bridging the gap is presented in the following report of a study in a New York State community.

A PUBLIC PHILOSOPHY IN PUBLIC HEALTH

Julius S. Prince, M.D., Dr.P.H., F.A.P.H.A.

WHY DO some apparently well planned public health programs fail? Why are others ignored, rejected, or even hotly resisted by the community they are designed to serve? Health educational technics often seem highly refined yet, in the end, when the results are faced one is often forced to inquire, "Who listened?"

Discussion of such failures among public health workers tends to bring out the feeling that the public itself is to blame by reason of its penurious or anti-intellectual attitudes, apathy, inadequate education, or what not! However, in the past decade or so there has been an increasing awareness of the fact that some of the "ignorance" in the community may be our own—that, perhaps, public health administrators need to study more objectively the reasons why some efforts in health education fail and others succeed.

One hears the term "interdisciplinary approach" used more and more frequently in connection with efforts to solve contemporary public health problems. What is really needed, however, is a close working relationship between the social sciences and public health rather than the lip service which public health administrators have so often accorded this relationship in the past. Otherwise, despite the recent attention which has been focused upon these fundamental problems by some public health administrators and social scientists[1–10] we will continue our failure, from a social science standpoint, to define the scope of these problems, the theoretical concepts involved, and some of the ways in which solutions of a practical nature may be discovered.

If public health and the social sciences are to join forces it is necessary not only for the social scientists to become more familiar with the needs of their brethren in public health,[11] but also for health officers to know something of the social sciences and, at least, to take an active part in the application of social science technics to the solution of public health problems. Furthermore, there is a need for public health administrators to point out some of the practical difficulties they face and some of the ways in which social scientists can help in resolving these difficulties. In fact, the study described in this paper arose from the writer's growing conviction, over 10 years of field experience, that it was indeed high time someone tackled this problem from the standpoint of the practicing health officer, using whatever technics and disciplines seemed necessary.

This study is divided into three parts as follows:

In the first place, an attempt was made to delineate the ecologic and social structure of a community and to show how this type of information may be an essential preliminary to the promotion of a modern public health program in that community.

Second, in order to clarify the role which opinion leaders may play in forming community attitudes toward public health this research attempted to compare attitudes toward, and knowledge of, public health programs and administration on the part of a representative sample of adults in the community and on the part of its opinion leaders.*

Finally, an effort was made to arrange this material in such a way as to demonstrate the feasibility of setting up both a qualitative and quantitative base line, so that some sort of objective measurement of the effect of a health educational program on knowledge and attitudes toward public health could in fact follow by a logical extension of the methods used here. Thus the "assessment of effect," perhaps even the "assessment of process" so interestingly described by Paul,[8] might be feasible.

* Koos [5,6] has described differences in attitudes toward health services, medical care, and some public health programs in different economic levels of an Upstate New York community. Larson and Hay in their studies of six rural New York State counties have shown differences in the use of health resources based on geographic location and to some extent on the family incomes of respondents.[12] Paul [7] and Foster [13] have shown how a failure to understand the culture and social structure of a community can wreak havoc with the administration of a public health program in that community. Sheps and Hunter [14] have shown how the "power structure" of a community can exert a disproportionate and not always beneficial effect on public health activities depending upon the attitudes of the opinion leaders—within the power structure. The "influentials" in other words are just as important to the "merchandisers" of public health as they are to the advertising agencies on "Madison Avenue."

Methods

This study was carried out during a period of approximately 18 months, beginning in the summer of 1953, while the writer was serving as district health officer in the "Commville" District of the New York State Department of Health. Its locale was a city of over 40,000 population, in Upstate New York, called "Commville" for purposes of anonimity. This city, furthermore, is in "Lake County" (population about 140,000) and both are within 100 miles of a large Upstate metropolitan area.

The study design included administration of a standard schedule by personal interview,† to a representative sample of 917 residents of Commville and to a group of 144 opinion leaders living in Commville or in its immediate environs. The interview schedule was pretested in another Lake County community and in Commville before being put in its final form. (Table 1 shows a sample page of the final schedule.)

The "representative sample" was an area probability sample obtained by interviewing every other adult (21 years of age or over) in every other dwelling unit within certain city blocks. The blocks were randomly chosen by the usual statistical methods.

The opinion leaders were identified in several ways. In the first place, the presidents or secretaries of a 33 per cent sample of all the organizations in Commville which could be enumerated were interviewed and asked to name people they considered as "influential," "boosters," and so on.[15] Of all those mentioned in this way, the 50 persons mentioned most frequently were taken into the "sample" to be interviewed with the standard schedule. Second, the names of all government officials in Commville (including councilmen, su-

† The interviews averaged about one hour in length.

Table 1—Sample Page of Commville Interview Schedule

(12) Suppose the State Health Department said they could do a better job than they are now in providing public health services in Lake County if they had a bigger staff hired by the state—more engineers, more nurses, etc., and that this could be done without additional cost to the county—would you be in favor of such a plan? .....
.....
Why is that? .....

(13) Lake County now has seven county public health nurses and this costs each person of the county 25 cents per year. According to the experts there should be one public health nurse for every 3,000 people and we should therefore have 15 more county public health nurses than we do. This would increase the cost to 65 cents per year for each person in Lake County. Do you think this increase in nursing service should be put into effect? .....
.....
Why is that? .....

(14) Do you know what the term, "State Aid," means? .....
If "yes"—could you please tell me what you think it means? .....
.....

If definition grossly inadequate, or entirely absent: "Well, just so we both understand the same thing by the term, "state aid," here is one way of describing it:

If definition reasonable: "Yes, that's about it. But just so we both understand the same thing by the term, "state aid," here is one way of describing it:

"State aid" is a method by which the state government equalizes the amounts of money which local government units, mostly counties, school districts, cities, have to spend on public services like road construction and maintenance, school construction, and operation, public welfare, public health, etc. The state government does this by paying the county or local governmental units a certain proportion of the costs of such services and buildings. The money for state aid comes mostly from taxes paid by all the people in the state."

pervisors, and others) were added to the list to be interviewed. Finally, an additional group of about 60 persons was included because of the writer's personal participant and nonparticipant observation of the Commville scene.[16] In this way the entire power group of Commville was, for all practical purposes, brought into the study, and the power group "sample" was more nearly a "universe."

When the interviewing was completed the answers to each question were coded on IBM cards according to a system which had previously been worked out with the pretest and practice interviews. Each interview was then analyzed using this code and the cards were appropriately punched.

Many methods for quantifying the results of interview data have been used by social scientists but the method which seemed most appropriate here was based on the construction of a series of indexes, very similar to those used by Lazarsfeld in his study of the voting behavior of the people of Erie County, Ohio, in 1940.[17] These indexes were intended to provide a quantitative estimate of a respondent's knowledge of public health, attitudes and opinions regarding public health, espousal of "home rule," and other matters. In all, nine such indexes were developed.

The scoring of individual items on each index was based on commonly accepted principles of desirable public health practice in New York State. For example, the principle of state financial aid for communities desiring to undertake public health programs is one of the keystones of our policy in New York State.* Thus, a respondent indicating that he was in favor of state aid got a higher score for his answer to that question than one opposing state aid. In addition, respondents were scored on their reasons for favoring or opposing certain practices. For instance, if a respondent said he favored state aid because it would "save money" for the community he was given a low score compared to one who favored state aid because it would "help provide additional needed services." In other words, the purpose of the state aid program in New York State is not to reduce the local cost of existing public health programs but to encourage communities to expand their public health services. Respondents' scores were therefore based, in part, on the degree to which they accepted or rejected this principle.†

Such a "built-in" bias may be considered arbitrary, but it should be borne in mind that different scoring could be used where different principles of public health practice are considered desirable—perhaps in some other state, for example. In any case, the technic is adaptable to whatever situation exists in the geographic or governmental unit which is being studied. Table 2 is a sample page from the Analysis Sheet used to score individual answers and Table 3 is a corresponding page from the Index of Attitudes and Opinions Toward Public Health.**

When all coding, scoring, and tabulation of the data were completed, certain characteristics of the representative sample were compared with the 1950 Census data for Commville. This comparison immediatedly showed that the sample sex distribution was seriously in error (32.8 per cent males and 67.2 per cent females in the sample versus 47.2 per cent males and 52.8 per cent females in the population). The reason for the discrepancy lay in faulty sampling within households but not in faulty choice of households. Consequently, other control data, such as educational level, occupation, quality of housing, and others of the sample, were in substantial agreement with those obtained in the 1950 Census of this population.

Finally, a set of 17 hypotheses, previously formulated, were tested against the data obtained, using as simple and straight-forward statistical methods as possible. All conclusions were subjected to the usual tests of significance, but correlation coefficients were not determined and analysis of variance was not employed. Instead, tabular data were grouped and percentages above and below means and medians or other logical "cut-off points" were compared where such treatment was indicated. No attempt was made, incidentally, to "weight" the results in order to counteract the excess of females in the sample. Consequently, this fact has to be borne in mind in interpreting the results. However, as shown by Table 4, there was very little difference in male and female attitude scores in the representative sample. In other words, sex alone did not seem to be an important determinant of attitudes toward public health.

* The dollar value of state aid varies somewhat depending on the type of program but generally amounts to about 50 per cent of the cost to the local community.

† In some instances a simple modified Likert type scale was used in scoring but, generally, the scoring was based on an empirical estimate of the respondents' attitudes as compared with those considered desirable in the context given above.

** The column numbers and code numbers on the Analysis Sheet are given certain numerical scores on the Index of Attitudes and Opinions. The column and code numbers on the one correspond with column and code numbers on the other.

Table 2—Sample Page of the Analysis Sheet

Column	Item and Code
57	Reasons for Attitude Toward Increased Services If Increased Cost: (Question J6, p. 10).
	1. No, because socialized medicine
	2. No, public health not a tax matter
	3. No, taxes high enough already
double	4. No, getting enough services as is
punch	5. No, too general—question of how much involved
	6. No, other
	7. Yes, because people's health major importance
	8. Yes, more taxes provide better services
	9. Yes, other
	0. D.K.
	"X" Doubtful
	"R" Offset (Do not code if N.A.)
58	Extra Expense per Person: (Question J7, p. 10).
	1. Decrease
	2. "Some"
	3. About same, i.e., no extra expense
	4. $0.49 or less
	5. $0.50 through $0.99
	6. $1.00 through $1.99
	7. $2.00 or over
	8. Whatever is necessary
	9. D.K.
	0. N.A.
	"X" Doubtful
	"R" Offset
59	Oppose or Favor Increased Expense: (Question J6, 7, p. 10).
	1. Oppose..
	2. Doubtful oppose
	3. Favor
	4. Doubtful favor
	5. Doubtful
	8. D.K.
	9. N.A.
	"R" Offset
60	Reason for Opposing or Favoring Increased Expense: (Question J7).
	1. Oppose—socialized medicine. Favor—need more health service
	2. Oppose—getting enough health services as is. Favor, whatever health authorities say is necessary should be done
double	3. Oppose—public health not a tax matter. Favor—health of major
punch	importance
	4. Oppose—taxes high already. Favor, good economy, should share expenses of health services
	5. Oppose—lack of information on subject. Favor—if need demonstrated
	6. Oppose—other. Favor—other
	8. D.K.
	9. N.A.
	0. Doubtful
	"R" Offset

Table 3—Sample Page of Index of Attitudes and Opinions Regarding Public Health

Column 35	Page Three	Card Two
Column	Question	Score
55	J5d Reasons for Attitudes Regarding Fluoridation:	
	Code	
	1	10
	2, 3	8
	4	6
	8, "R", 0	0
	5	−5
	6, 7	−2
57	J6 Reasons for Attitudes Toward Increased Services if Increased Cost:	
	8	10
	7	8
	9	6
	0, "R", "X"	0
	5	−2
	4, 6	−4
	2, 3	−6
	1	−8
58	J7 Extra Expense per Person:	
	8	10
	7	8
	6	6
	5	4
	4, 2	3
	3	2
	9, "R", "X"	0
	1	−4
59 and 60	J6, 7, Reasons for Opposing or Favoring Increased Expense:	
	3, 4 (Column 59 and:	
	2	10
	1, 3	8
	4	7
	6	6
	5	3
	8, 9, 0, "R"	0
	1, 2 (Column 59) and:	
	8, 9, 0, "R"	0
	5	−2
	2, 6	−4
	3, 4	−6
	1	−8
	5, 8, 9, R (Columbia 59) and any combination	0

Do not score if "N.A." in both columns 59 and 60.

Table 4—Mean Scores on Index of Attitudes and Opinions About Public Health by Age and Sex of Respondents in Representative Sample and Power Structure

	Representative Sample						Power Structure					
		Male		Female		Both Sexes		Male		Female		Both Sexes
Age	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean	No.	Mean
21–30	49	130	136	133			1	135	1	135		
31–40	56	132	144	124			18	137	3	125		
41–50	41	121	103	120			32	128	3	145		
51–65	99	116	155	113			54	113	10	150		
65+	54	99	76	101			16	89	6	120		
All Ages	299	119	614	120	913	119	121	118*	23	138*	144	121
		121†		119†		120†		117†		140†		120†

* The difference between these means is significant beyond the 1 per cent level of confidence.
† Adjusted for percentage distribution by age and sex of males and females combined.

Results

The city of Commville is relatively isolated from other parts of the county in which it lies, as well as from the greater part of the state. The "friction of space," [18] created by climatic and geographic conditions and the ethnic, occupational, and social differences between the people of Commville and other communities, combines to bring about this relative isolation. Obviously, such a finding would have to be taken into account in the planning of public health programs, either for the city or for the entire county.

The analysis of the distribution of "power" among the people of Commville showed that this had undergone considerable change in relatively recent years. In 1953–1954, "power" was divided among many people who exerted their influence not only by virtue of their control over the financial structure of the community but also as a result of their control over the channels of communication, the production of goods and services, and by virtue of their prominence in the community's civic affairs. Thus, the power structure was broad-based rather than being centered in one or two men. It included many younger people who seemed to be more interested in the general community welfare than had been true only a few years previously.

Testing of the hypotheses against the data showed, first of all, that men and women in the community did not differ substantially in their willingness to accept the newer ideas in public health and to place importance on the rendering of services, rather than on the question of how much the service would cost. However, the women in the power structure, over 40 years of age, were more forward-looking with respect to public health than any other group in Commville.

Although the over-all score on the Index of Attitudes and Opinions Toward Public Health, on the part of the power group, did not differ significantly from that of the representative sample (Table 4), there were distinct differences on individual issues which, however, "cancel themselves out" when the entire index is considered. For example, a significantly larger percentage of respondents in the power group (76 per cent) than in the representative sample (67 per cent) favored the expansion of public health services even if such expansion involved increased local expense. On the other hand, a significantly smaller percentage of the respond-

ents in the power group (42 per cent) than in the representative sample (60 per cent) favored more state aid for "public services including public health." Thus, in one way, the power group's attitudes were more in line with "commonly accepted principles of desirable public health practice in New York State" than were those of the representative sample but, in another way, the opposite was true.

In the area of knowledge of public health activities in Commville the power group ranked well above the representative sample. (The mean score on the Index of Knowledge of Public Health was 20.8 in the case of the representative sample and 50.7 in the case of the power group.) A study of the components of this index leads to the conclusion that the power group not only knew more about public health programs in Commville than did the representative sample, but that they also knew more about public health needs in the city.

One would, perhaps, expect that knowledge of public health would vary directly with formal education and this proved to be the case, as 66.1 per cent of the power group respondents had liberal arts, scientific, or professional education beyond the high school level, whereas this was true of only 9.2 per cent of the representative sample respondents. The representative sample also showed a strong direct relationship between formal education and knowledge of public health (Figure 1).

In addition, it should be noted that, by and large, where either questions of fact or opinion were concerned it was unusual for more than 20 per cent of the answers to be in the D.K. (do not know) or N.A. (no answer) category. Allowing for "probing" on the part of the interviewers, it still seems perfectly fair to say, therefore, that over half of the respondents interviewed had definite information about many aspects of public health and were sufficiently interested in the subject to express opinions about it.

Finally, with respect to many aspects of public health, whether involving expansion of services, increased expenditures, or improved administration, it

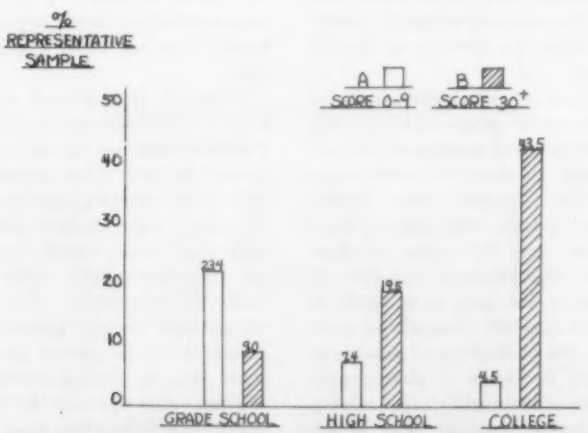

Figure 1—Graph Showing Per cent of Representative Sample Respondents with Certain Educational Background Receiving a Score of (A) 0–9 and (B) 30 and Over on Index of Knowledge of Public Health

was encouraging to note that a majority of the respondents were "on our side" of the argument. To be sure, there were exceptions, such as the 52 per cent of the power group who felt that local authorities were handicapped by "state control" in state-aided programs and the 75 per cent of the power group who felt that state-aided programs tended to become more expensive to local communities, as time went on, in spite of state aid. Nevertheless, these were exceptions to the general rule and the writer feels that interest in public health and the desire for improved public health services, on the part of both representative sample and power group, was clearly indicated by this study. Whether the same would hold for the population of the rural parts of Lake County or whether it would hold for other communities in New York State or elsewhere still remains to be seen. Koos's studies in "Regionville" and "Metropolis," [5, 6] Hunter's study of Regional City, and Sheps and Hunter's work in Salem, Mass.,[14] certainly place power structure elements in a rather dubious position; but the approaches they use and the emphases of their studies are not sufficiently similar to those employed here to permit any definite comparisons.

Discussion

No community exists in a vacuum, nor is any part of it independent of some other part.[19] It would seem that a failure to recognize this fact and to know something, at least, of the various interrelationships involved can be a serious obstacle to the health officer's effectiveness.

The delineation of the opinion leaders in a community is of obvious importance to any health officer for two reasons. First, these are often the people who actually make decisions and, second, even if this degree of power is not in their hands, their opinions are so honored by other people in the community that for them to favor some public health program, for example, is tantamount to its acceptance by the public at large and vice versa. If the health officer is unaware of such a situation in a community and therefore fails to take advantage of it, he may be in for some rude surprises when he attempts to gain support for new public health programs! *

The information obtained in this study tells us three things about Commville. It tells us about the geographic, climatologic, cultural, and other characteristics of Lake County (and Commville, too, of course) which might make it difficult (or easy) to establish or expand a public health program there. Second, it provides us with a possible base line of knowledge, opinions, and so forth, from which any subsequent changes could be measured. Finally, it might provide the beginning, at least, of a more logical approach to evaluating the "effect" element of a public health program than we have had so far and, as pointed out previously, could be altered to include "depth interviews" and other technics for describing the "process" element as defined by Paul.[8]

However, to accomplish much more of a definitive nature along these lines it would be necessary to establish "experimental" and "control" communities. Perhaps, in this connection, the type of approach used by Cobb, et al.,[21] in the Arsenal Health District of Pittsburgh, Pa., might be repeated in several communities, chosen so that they are as nearly alike as possible, or in several widely separated areas of the same city.

Conclusion

Recent years have drawn a huge gulf between two fundamentally different ways of life. One of the principal char-

* See Hunter,[20] White,[15] Vidich and Shapiro,[16] and Chapter IV in Boek and Boek.[9]

acteristics of our way of life, as compared with the other, is that in our case the decision-making process rests fundamentally with the people. Any governmental agencies or officials who fail to live by this "rule" not only invite failure to reach their objectives but also may work unconsciously to undermine the bulwarks of our free society.

If the citizens of our communities are incapable of making wise decisions in public health matters, then the answer does not lie in the direction of increased authoritarianism on our part. It lies rather in the direction of developing better technics for getting our ideas across and a more widespread acceptance, on our part, of the importance of the social science approach to community public health problems. To do this will take time and application on the part of all concerned and, perhaps, first of all, it will require more general recognition by public officials of the knowledge and interest in public affairs already available to help them in their work—if they will only look for it among the people of their communities!

If the people of this country are poorly informed or poorly motivated about public health matters then it is clearly our job to try and change this situation for the better. A defeatist attitude toward such a problem will do no more good than it does in any other. It is interesting to note that industry has found it economically desirable to engage in consumer studies in order to determine some of the factors involved in public acceptance of its products—especially the reasons why there are differences in attitude toward a given product.[22] If it is economically sound for industry to spend money in order to better understand its consumers' motives, is not this also true of public health?

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Dr. Prince is district health officer, New York State Department of Health, Jamestown, N. Y.

Air pollution in urban centers has increased to a point where it has become an important community problem. This paper reviews the nature of the problem, its implications and emphasizes the need for action—in terms of research and control.

HEALTH EFFECTS OF AIR POLLUTION

Lester Breslow, M.D., M.P.H., F.A.P.H.A., and John Goldsmith, M.D.

SINCE THE London and Donora air pollution disasters, public health workers among others have shown substantial concern about the health effects of air pollution. This concern extends not only to the possible repetition of such episodes in various cities of the world, but to the immediate adverse effect of air pollution on human well-being, and also to possible long-term effects.

Interference with Well-Being

The effect on well-being has not received the attention which it deserves. As mortality and morbidity from preventable disease continue to decline, the achievement of health as defined by the World Health Organization—physical, mental, and social well-being—becomes a more feasible goal. Anything which hinders its attainment must then be recognized as adversely affecting health.

Viewed in this sense, pollution of many cities of the world with aerial sewage has already created a substantial health problem. Anyone who has felt the grime of London's East End, encountered the foul odors in metropolitan communities of both Eastern and Western countries, or suffered the eye irritation of Los Angeles smog will certainly agree that such conditions detract from physical, mental, and social well-being.

Health authorities and other "hard-headed" persons have disdained until recently to devote resources to this kind of health problem. They are inclined to label it a "nuisance, nothing more." However, popular will is beginning to force attention to the problem. This trend manifests itself in widespread indignation that air pollution is not eliminated, in political battles over the issue, and often now in legislative action to establish control measures. Public understanding and desire ultimately determine all public health effort. In our wisdom as technicians let us not forget this fact, nor the fact that popular concern about water-borne sewage played a great part in the sanitary awakening of a century ago—long before bacteriology had established a scientific basis for the control of water pollution. If we are to attack air pollution as an environmental influence which diminishes health and causes disease and death, then it seems desirable to measure the extent to which it does interfere with well-being.

In California during the summer of 1956 the State Department of Public Health sought information on this question through personal interviews with adults in 3,545 households—a represen-

tative, state-wide sample of the population. About two-fifths of the respondents reported that they were bothered by air pollution.[1] In Los Angeles County the proportion was two-thirds, in other parts of the state about one-fifth. Most persons complained about eye irritation, with nasal symptoms next in frequency. Typical responses were: "My eyes water and it's hard to breathe and sometimes I get a headache." "It bothers my eyes, my breathing, my temper and my wife's disposition." "Eyes smart some. It creates a dreary condition of mind." "Physically—it bothers hayfever and sinuses—eye irritation. Shortens temper and gives a bleak mental outlook."

Early in the interview (before air pollution was mentioned in the questionnaire), three out of ten Los Angeles residents indicated some dissatisfaction with their community, a higher proportion than elsewhere in the state. Smog was the most frequently named disagreeable factor, being mentioned by one-fourth of those expressing dissatisfaction. The survey also disclosed that air pollution has already played a substantial role in change of residence by Californians. Furthermore the adults in one out of eight Los Angeles households reported that they are now considering a change of residence because of air pollution; others considered changing jobs.

Lest anyone infer that Californians are simply hypochondriacs, it should be reported that four-fifths of them stated their general health to be excellent or good, and only one in 25 considered his health to be poor.

These data provide some indication of the extent to which air pollution in California causes irritation not only of the eyes but in the whole of life. Interference with well-being to the point of changing residence or job represents a disruption of health which certainly qualifies smog as a public health problem.

Long-Term Effects

Delayed health effects of air pollution have presented the epidemiologist with some difficult problems. Consider lung cancer. The current emphasis on the idea that cigarette smoking causes a large amount of lung cancer should not distract public health workers from efforts to determine other etiologic factors.

As a matter of fact substantial evidence now supports the notion that community air pollution may be another important factor, both in the United States and Great Britain. Lung cancer affects city-dwellers to a much greater extent than it does residents of non-metropolitan areas.[2, 3] Stocks and Campbell [4] found nine times as much lung cancer among male nonsmokers who lived in a city than occurred among male nonsmokers living in rural areas. Eastcott [5] showed that within comparable age groups English immigrants to New Zealand had a 30 per cent higher lung cancer death rate than native New Zealanders, and the excess was 75 per cent in those over 30 years of age on emigration. Since there was no difference in the average tobacco consumption, it appears that exposure to the atmosphere of British industrial cities may be responsible.

In addition certain experimental data bear on this question. Substances found in the air of Los Angeles will produce cancer in mice [6] as will extracts from motor vehicle exhausts.[7, 8] Moreover chemical studies have demonstrated the presence of 3, 4-benzpyrene (one of the most potent known cancerogenic substances) in the air of many cities in the world.[9] Incidentally, our British colleagues have progressed far beyond us in studying this hazardous material in the air.

Thus experimental and chemical evidence converge with epidemiologic evi-

dence to compel serious consideration of the role of air pollution in lung cancer. Analysis of the rising lung cancer rate during recent decades and evidence pertaining to causative factors in the past make us realize that the full impact of present environmental exposures may not be felt for 30 or 40 years.

Another disease which appears to represent a long-term effect of air pollution is chronic bronchitis. In Great Britain the death rate from this disease is 34 times as high [10, 11] as that recorded in the United States, that is, about as high as the death rate from accidents in this country. British investigators have demonstrated that the mortality from chronic bronchitis is higher in the urban communities which have greater amounts of air pollution.[12] Recent studies in London [13] also reveal definite aggravation of symptoms among patients with chronic bronchitis during periods when atmospheric smoke and sulfur dioxide increase. Moreover, the air pollution disaster of 1952 affected particularly older persons and many of the excess deaths were attributed to chronic bronchitis. All this evidence points to a profound effect of air pollution, as experienced in Great Britain, on the course—if not the origin—of chronic bronchitis.

Attempts in this country to determine whether air pollution causes or aggravates chronic respiratory disease have been less conclusive. In this connection one must recall the greater geographic mobility of the United States population, and the fact that the nature of the polluting substances is different in the United States (derived to a greater extent from petroleum) than in Britain. Several investigators are seeking data on this problem, and some have recently appeared.[15] In Los Angeles some physicians have had the impression that episodes of smog may precipitate bouts of asthma. However, an investigation by Schoettlin and Landau [16] based upon the recording of all attacks among 137 asthma patients during 15 weeks of the 1956 smog "season" did not confirm this impression.

Use of coal and oil have contributed largely to problems of community atmospheric pollution. Man's newest source of energy, the atomic nucleus, has produced air pollution affecting the entire earth.

When considering latent effects of contaminating the atmosphere with ionizing radiation, it becomes necessary to recognize that fall-out from a single explosion will persist for decades and its effects will extend over generations. Geneticists agree that the number of mutations—and most of these are harmful—is strictly proportional to the amount of radiation received. There is no "safe" or harmless dose. Some evidence also implies that even small doses of radiation may cause leukemia and bone cancer in a small proportion of exposed persons. But this small proportion must be applied to the entire world population.[17] Thus, nuclear explosions of the past 12 years may already be causing an unknown number of cases. Taking into account the exposure of the entire world population, this number may not be inconsiderable.

Air Pollution Disasters

The well-known London episode of December, 1952, caused at least 3,500 excess deaths during the two weeks following a period of severe fog.[18] In Donora, Pa., 20 persons died and approximately 50 per cent of the population experienced acute illness as a result of air pollution during October, 1948.[19] It is entirely possible that such disasters will recur, and their scope will always be unpredictable. Knowledge of the factors responsible for them is still extremely limited. Planning an air pollution program must therefore take into account the possibility of such events.

In addition, the fact that the full

extent of the 1952 London episode became known only after inspection of mortality records has suggested that we may be overlooking "little episodes" of excessive mortality from air pollution, just as clinicians may overlook "little strokes."

Since 1954, the California State Department of Public Health has been carefully examining the daily mortality experience of Los Angeles residents, in relation to air pollution as measured by environmental indexes. As yet no effect on mortality has been demonstrated. Although another investigator [20] has claimed an excess of 334 deaths during 1954 due to air pollution, our analysis does not support this conclusion. In no single episode of air pollution in Los Angeles has a clear association with excess mortality been proved.

Besides observing mortality in the entire population, and among all persons over 65 years of age, the department has maintained surveillance over the deaths and transfers to hospital among approximately 4,000 nursing home patients. These are frail people averaging 80 years of age, and hence might be expected to have a high mortality rate reflecting quickly any adverse environmental condition. As a matter of fact the mortality at one time in 1955 rose to a peak about nine times the average level, but this was associated with a period of extremely high temperature—above 100° for several days, and up to 110°—whereas the Los Angeles temperature usually stays below 90°.

Since Los Angeles-type smog apparently depends on sunlight, periods of high temperature frequently coincide with periods of air pollution. Disentangling the effects of these two related phenomena—temperature and air pollution—on the small daily variations in mortality presents a most difficult task for the biostatistician. The problem is still to be solved, and the only answer to date is that no definite effect on mortality from air pollution alone has been ascertained, which is not to say that no such effect occurs. The question requires continuing study.

The possibility of a lethal effect from air pollution deserves attention in all metroplitan areas. Eastern cities of this country suffer in varying degree from air pollution caused by combustion of coal, the discharge of waste from factories, and other sources. The fact that Los Angeles has attracted the greatest public attention is no reason for other areas to be complacent.

The air we breathe is not subject to individual control in the same sense that other aspects of the environment may be controlled. Without warning it may affect the frail and the infirm, and with present technology once air pollution has occurred, little can be done to protect the many susceptibles.

Discussion

The health problems arising from air pollution include immediate, obvious interference with well-being, long-term effects, and its disaster-producing potential. Present knowledge of these health implications justifies strenuous control efforts.

However, research on the health effects must be pursued with equal vigor in order to identify the aspects of air pollution which are most dangerous to human life and well-being. The trend in some circles to derogate study of the health effects in favor of control efforts alone can lead only to trouble. We need to push air pollution control with all available knowledge and at the same time seek more knowledge to guide control work. Otherwise we may find ourselves in somewhat the same position as our predecessors in public health—seeking to protect the taste and appearance of the water without destroying the typhoid bacilli.

Further investigation should encom-

pass the laboratory, clinical, and epidemiologic approaches. This triumvirate has solved many problems with tremendous benefit to mankind, and has much to offer in solving the air pollution problem.

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The authors are associated with the Bureau of Chronic Diseases, State Department of Public Health, Berkeley, Calif.

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Invention Cuts Fluoridation Cost

Two Public Health Service scientists have won the U. S. Department of Health, Education, and Welfare Superior Service Awards for their invention of a fluorspar dissolver, a revolutionary engineering device that cuts costs two-thirds in the fluoridation of community water supplies to reduce tooth decay. The two are Franz J. Maier, sanitary engineer director, and Ervin Bellack, chemist, of the Division of Dental Public Health Laboratory.

Fluorspar, the cheapest of all commercial fluorides, was previously not practical for fluoridation since it does not dissolve readily. The Public Health Service team found that the fluoride in fluorspar becomes available in the presence of alum and developed a dissolver.

Have you considered televising your annual report? Here is the story of how one health department did it. Read it and you may feel inclined to go and do likewise.

TELEVISE THAT ANNUAL REPORT

Sophus R. Christensen

HOW CAN the annual report be utilized to make it an educational tool for both a health department and the community? This is the question and its problem. It is a problem for many agencies who face the necessary task of reporting at the end of a year. It is also a problem to which much thought is given by students of public health. As a result, annual reports have in recent years attained greater success in communication and many original ideas are now utilized in telling people the story of a year's effort. Many of these are familiar to us.

With this background, our department faced the question of providing an annual report. We asked ourselves how can we, in addition to advances already made, provide a report that will be a greater tool of education for the public? We decided that the answer was in television.

Because of this decision and as a result of later developments, we urge you —make your annual report a greater vehicle of education through television.

What did we wish to accomplish? In our weekly section or department heads' staff meetings we decided that the activity must accomplish three objectives: (1) the activity must involve the department, (2) the activity must involve the community, and (3) the activity must provide satisfying growth experiences for the department personnel and the people of the community.

First, to be basically sound, the activity must involve the department personnel. We were not thinking of the activity merely for publicity purposes but with the thought of personnel growth and development. To bring this about department personnel must be involved.

The first step is to gain permissive action for televising from the manager of your television station. This may be difficult as annual reports are not considered high in audience interest. It is of great value to point out that in addition to audio, there will be visual interpretation utilizing the technics of health education. It is also of great value to point out that you are interested in building up a viewing audience, that it will be promoted through your facilities of communication, such as newspaper outlets and radio. It is also helpful to suggest that you will promote it through your official and voluntary agencies, service and civic clubs. Clearing the obstacles to gain permissive action for televising is the first step and the suggestions given are valuable because television stations do have advertisers to protect, both before and after your program. An agency must actively enter into promotion for its own benefit as well as for the benefit of the television station.

Each section of our department sub-

mits monthly reports, and from these their individual annual report is compiled at the end of the year. Each section was asked to complete the annual report by December 15. Usually it is assumed that an annual report cannot be completed until after the first of the year. However, significant happenings do not ordinarily occur during the last 15 days of the year and a few statistics can be added later. An annual report should be completed and used while its content is still news.

From the sectional annual reports each section chief provided three or four outstanding events or accomplishments that occurred during the year. Furthermore, the problems were not forgotten. It is important to take the public into our confidence regarding problems. These events and problems were discussed in our staff meetings and we agreed on what should be emphasized. In addition, decision was reached upon a format and theme for the program.

It was agreed to provide visual interpretation for all events depicted. We discussed the elimination of the stilted round-table discussion or interview so often used in educational programs and decided that the technics of health education should be utilized to the greatest possible extent. Each section chief agreed to submit for discussion his suggested technics for depicting the event or problem decided upon. We used role playing, problem solving situations, individual conferences, prepared slides, pictures, cartoons, demonstrations, charts, and so forth.

This material came back to our public health educator who proceeded to rewrite it and fit it into the half-hour program. Upon completion of rewriting, each section was given its portion of the script with its allotted time.

Each section or department could rehearse its material without a complete over-all rehearsal. In our first complete rehearsal we were between two and three minutes over the allowed time. Two rehearsals were held by the entire cast before the dry run at the television station.

Fifteen staff members of our agency were used in the cast of the televised report. Almost all personnel were involved in some manner, such as procurement and care of props and assistance in changing the sets. In addition, 16 people from the community were part of the cast.

This, in brief, was how our staff was involved. The project became an activity of the whole department and became our annual report, rather than a report written and submitted by the health educator or the office of administration.

Now consider our second objective. The activity must involve the community. Good public health practice involves the use of people in the community and the resources of that community for the solution of their own health problems. A public agency exists because of the support of that community. It is therefore logical that as a community moves forward toward greater health goals its people must also share in the problems and victories.

The telecast involved the chairman of our Board of Health, the city manager, the executive secretary of the Council of Social Agencies, a board member of the Public Health Nursing Association, the chairman of the Council of Social Agencies, a teacher in one of the high schools, and a mother and baby from the community. These people did not hesitate to give support. In addition, eight high school students in the city and county from the same number of high schools were involved. These people provided educational resources for publicizing and promotion of the report.

There are 14 county papers in areas outside of the City of Des Moines. Of these, 10 carried front-page stories con-

cerning the televising of this annual report. We have two daily papers. One of these carried the story. There are five radio and two television stations within the city and while the story was carried as spot news announcements by the radio stations, the other television station failed to mention it. The reason for this is quite obvious in that one television station would hesitate to publicize the program of another station. Each of the eight high schools chosen in the city and county have school papers. These school papers were provided with news releases concerning the televising of the report, featuring the fact that a member of their school was in the television show. The superintendents of both our city and county school systems cooperated by having the time and date of the telecast announced in the schools with suggestions that the students inform their parents.

At this time our department had a weekly radio program. The coming telecast was mentioned in this program at two different intervals. In addition, the report itself was utilized as a method of promotion. Two thousand copies were mailed to key individuals in the community. The report itself titled, "The Annual Report of Des Moines-Polk County Departments of Public Health," was televised over WHO-TV, Tuesday, February 1, 1955, 1:30 to 2:00 p.m.

I am aware that the title, "Annual Report," is in disrepute, and labels the story of a year's progress as dull and uninteresting. In our first televised report, this caption was deliberately used because of its promotional value in building up a viewing audience. This practice was later changed.

Announcements were sent and made to organized community groups, such as the Council of Social Agencies, women's clubs, civic clubs, and others with the suggestion that they give this information to the members of their respective agencies. These methods of community involvement and promotion may be of value as one thinks in terms of increasing the effectiveness of an annual report by means of television.

Our third objective was to provide growth for the department personnel and the community. Gaining this objective was dependent upon the actual involvement of the department personnel and community.

Involving staff personnel in planning and placing responsibility for each portion on the staff provided experiences for the personnel that we believe resulted in growth. We did not attempt to measure this by other than informal means, such as noting expressions that indicated they enjoyed working together, the good natured ribbing that went on between individuals suggesting that they were television stars, and the attitude that it was a good job well done. Compliments from community people helped a lot and the entire viewpoint of the personnel changed toward this means of communication.

Our staff did not feel that it was an especially difficult task. Some of the later reaction was, "We have done it once, we can do it again." We believe that the objective of personnel growth within the department was gained. Evidence of this has been demonstrated in later televising and reporting.

What happened in the community as a result of this effort? Again our measurement of change was largely by informal means. The television station received about 35 to 40 letters and cards complimenting them on a worth-while community enterprise. A number of telephone calls were received expressing appreciation for the station's part in a community enterprise. Our agency received a number of calls and letters from members of the community complimenting us on bringing to them an interesting program about the past year's

efforts. Many remarked also that they considered this means an innovation in bringing the activities of the health department to the public.

We received and have on file approximately 200 letters from various departments and agencies in public health and allied fields asking for a copy of our televised report and complimenting us on this method of presenting our activities to the people. No invitation was issued to community people or to families of health department personnel to witness the televising. In spite of this the studio was crowded.

We utilized two camera crews, five sets, and one off stage microphone. Many remarked that this was no ordinary television show, that it was a production.

Some community responses have been mentioned. We assume this resulted in growth. The following year we again asked the manger of WHO-TV for permission to televise the annual report. His answer, "We will be glad to do that, on one condition. It must be at least half as good as last year's report."

As you think in terms of televising your annual report, keep in mind this objective of growth for department personnel and your community.

Conclusion

Now, the final product—we have a two-part report. The narrative portion is the actual television script. It tells the story of the year's efforts and problems. The second part of the report is the statistical portion. This is for those interested in determining facts of vital significance. This is not a part of the televised portion.

Does this means of presenting an annual report assure changes in health behavior on the part of health department personnel and the community? A scientific answer to that question would be the ultimate in evaluation. It might have been possible to do a sampling survey to determine the number who viewed the telecast. This would still give us no measure as to behavior change.

We believe it provides an educational experience that results in growth for the personnel of a health agency. We believe it provides an educational experience that results in satisfying growth for the people of a community. We believe it to be the best and most effective manner of communicating to our public the efforts and programs of their health agency. We urge you, make your annual report a greater vehicle of education through television.

Mr. Christensen is director of public health education, Des Moines-Polk County Department of Public Health, Des Moines, Iowa.

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Journal of Public Health

EDITORIALS

"Lloyd George's Ambulance Wagon"

On June 11, 1911, in a speech at Birmingham, Lloyd George said: "This year, this Session, I have joined the Red Cross. I am in the ambulance corps. I am engaged to drive a wagon through the twistings and turnings and ruts of the Parlimentary road. There are men who tell me I have overloaded that wagon. I have taken three years to pack it carefully. I cannot spare a single parcel, for the suffering is very great. There are those who say my wagon is half empty. I say it is as much as I can carry. Now there are some who say I am in a great hurry. I am rather in a hurry, for I can hear the moanings of the wounded, and I want to carry relief to them in the alleys, the homes where they lie stricken. . . ." [1] This picturesque rhetoric concerned the bill enacted in December of that year as the National Health Insurance Act. The aptness of the imagery is clearly evident in the recently published memoirs of W. J. Braithwaite, one of the two civil servants who bore the burden of translating into an Act of Parliament the desire of Lloyd George to help the less fortunate.

The Braithwaite memoirs throw a revealing light on the inner history of a great adventure in social and health legislation. The birth pangs of a major legislative achievement are revealed on a day-to-day basis in the maneuverings of politicians and interest groups (friendly societies, trade unions, doctors), in the working relations between ministers and civil servants, in terms of the obstacles encountered and how they were mastered or circumvented. The narrative moves continually from parliamentary proceedings to discussions and negotiations behind the scenes, and back again. Ultimately there emerged an imperfect compromise between what Lloyd George wanted to do and what was possible in the given political and social situation. Braithwaite's account is, thus, more than just a fascinating study of an interesting and dramatic event; it is that rara avis, a case history of the political process operating in the field of health and welfare. It is not often that we are able to study the politics of health at such close range and in such detail—and more's the pity.

An understanding of the political process as it affects the handling of community health problems is as crucial an area of knowledge to health workers as the scientific underpinning of health practice. Generally, the education of public health workers does not prepare

them to enter into the meanderings of the stream of politics as it affects the public health. True, official health agencies are theoretically apolitical, and yet every practicing health worker knows that significant amounts of power are wielded by organized interest groups, that the activities of such groups can be important elements in political developments, and that they may have a critically important impact on the public health of the community for good or evil. The political activities of interest groups are not new in America, nor are they a peculiarly American phenomenon. Herring has pointed out that "Small groups have always striven for their particular interests before governmental powers." [2] A classic statement of this point is James Madison's account in "The Federalist" of the causes of "faction" and the impact of divergent groups on government. Indeed, throughout the history of public health the element of political action is intimately intertwined with social organization, cultural patterns and scientific knowledge. Whether we think of Chadwick in England, Eaton in America, or Pettenkofer in Bavaria, what they achieved was the result of political activity by organized groups.

Training in and understanding of the political process in relation to community health is essential to all concerned with this area. Access to government, to public opinion, to vital points in the power structure of the community at various levels is of crucial importance at one time or another for virtually all groups concerned with health. The product of effective access is legislation or some other form of governmental action. For this reason, public health workers need the greatest possible understanding of the dynamics of access, the technics utilized by interest groups to enhance and exploit the degree of access they have achieved, and what this means in administration, program planning, and the application of knowledge for better health. No conception of the political process is adequate that does not take into account the dynamic and power implications of class stratification. In relation to health, much of this still remains to be explored but some information already exists. Certainly, the fluoridation controversies in various communities, conflicts centering on the establishment of local health departments, the several hot and cold campaigns in the struggles concerned with the financing and organization of medical care, all illustrate in one way or another the politics of health in action.

This is clearly an area for research. The political scientist, the sociologist, the social psychologist, the student of public administration can all find here a fruitful area to explore. Public health workers who are in a position to collaborate with such investigators will undoubtedly learn a great deal by seeing their problems in another context, and will gain fresh insights into the complexities of the American community. Equally important is the inclusion of this area in the education of the future public health practitioner. This is a problem for schools of public health. No one can say exactly how this is to be done, but that it needs doing is beyond question. The political process is of the very essence of community life, and the public health worker whose field of action is the community must learn all the twistings and turnings and ruts of the political road that runs through it.

1. Lloyd George's Ambulance Wagon. Memoirs of William J. Braithwaite 1911-1912. Edited with an introduction by Sir Henry M. Bunbury, K.C.B., and with a commentary by Richard Titmuss. London, England: Methuen & Co., Ltd., 1957, p. 177.
2. E. Pendleton Herring: Group Representation Before Congress. Public Administration and the Public Interest. New York: McGraw-Hill, 1936, p. 241.

The U. S. National Health Survey

NEEDS AND desires which have long been felt by American health workers have now been realized in the U. S.

National Health Survey. Operating under a broad Congressional mandate for the Surgeon General of the Public Health Service "to make, by sampling or other appropriate means, surveys and special studies of disability and related information . . . and in connection therewith, to develop and test new or improved methods for obtaining current data on illness and disability and related information," the Survey has now been in the field for a year with the household interview phase of its program. The first results based on household interviewing have recently been published, and the first pilot studies, looking toward another type of survey based on health examinations, have been initiated. Furthermore, a variety of methodological studies are under way in support of these activities.

Leaving out of consideration details of program operation, it is useful to note some of the policies underlying the Survey, and the directions taken by the Survey in consequence. The Survey is conceived of by the Public Health Service as a service to the users of health statistics—a group which includes public health administrators, medical research workers, private health agencies, members of the various health and related professions, demographers, economists, sociologists, educational institutions, life and health insurance agencies, manufacturers of drugs and other health products, as well as other groups whose interests and activities are related to health. This service concept is a basic premise of the National Health Survey, which permeates the entire program. Within the technical and administrative possibilities, it is the key to major policy decisions.

To serve the purposes of users of general health statistics, the collection of data on sick people must be paralleled by collection of information on the population as a whole. Accordingly, the Survey's responsibility is considered to be the collection of types of data based on a general sample of the population in contrast to studies based on selected segments of the population, e.g., persons whose medical records are available in physicians' offices, health agencies, hospitals, and so forth.

The Survey has no specialized subject matter interests of its own. Rather, the subject matter interest are dictated by its clientele—the consumers of health statistics. Many statistical projects, both in the Public Health Service and elsewhere, are designed to serve some particular program interest, are aimed at a specific disease entity at studying health conditions in a special segment of the population, and so forth. In contrast, the U. S. National Health Survey is not designed to serve any single health program interest exclusively nor to meet the needs for detailed local or special data. Its purpose is to produce general background data on the over-all health situation and to show the various components of the health problem in proportionate relation to each other. In pursuing this purpose, its activities will supplement but not supplant special or local statistical projects.

As the most promising means of meeting the needs of those it serves, the Survey was organized in three parts. There is a continuing nation-wide household interview survey; a series of special studies to gather information of a type for which the household interview method is not appropriate; and, cutting across and supporting these two aspects, a series of methodological studies.

In point of time the household interview survey was given preference, and this phase of the program has already produced preliminary reports on such topics as physician visits, dental care, accidental injuries, and the acute upper respiratory diseases. However, it is recognized that to build a rounded picture of the health of the nation, the household interview method must be supple-

mented by additional means of obtaining information which will fill gaps in the picture obtained by household interview. These additional means constitute the special studies. In this area, primary emphasis is on designing and fielding a series of health examinations which will produce acceptable diagnostic information for the general population and base line data for important physical and physiological variables.

Partly, perhaps, because of the inherent difficulties of measuring illness, the science of morbidity statistics has been slow to develop. Established and proved methods of data collection exist for only a portion of the types of morbidity statistics which are in demand today, and the need for developing and improving a variety of methods is urgent. For this reason the study of technical methods occupies a prominent place in the Survey program and will be the subject of continuing activity.

The proper design of a consumer-oriented program is possible only with the help of channels through which consumer needs can be assessed regularly. Accordingly, a first step in the organization of the Survey was to devise a means whereby the planning could proceed with the benefit of advice and suggestions from many quarters. For this purpose three advisory committees were formed, two within the federal government and a third drawn from a variety of nongovernmental agencies and interests. The advice of these groups is sought systematically, not only through formal meetings but also by requesting their review and opinion on specific proposed courses of action.

The governing consideration with regard to publishing Survey results is that findings shall be made available to interested persons as expeditiously as possible. Thus many of the reports will be issued on an ad hoc basis as rapidly as the data collection on a particular topic will justify—as contrasted with the holding of material for an annual or semiannual volume; and some of the early ones, being based on a minimum of data, will be preliminary. This plan, however, does not preclude more intensive treatment of the same topics at a later time when the accumulation of data will permit development of more detail.

Finally, the Survey program, despite its promise, has definite limitations. The statistics it produces will not provide critical tests of clinical and epidemiological hypotheses. The initial sample size of the household interview survey—and to an even greater degree of the health examination series—is such as to yield estimates for major geographic areas only and does not permit estimates for occurrences of low incidence. Both the household interview method and the health examination method have their peculiar disadvantages—although when used in combination the two types of surveys complement each other and the results from one enhance the value of the other. It is noteworthy, however, that some of the Survey's potential limitations are already being mitigated by choices of methods and procedures; and it is to be hoped that over a period of time the difficulties can be nullified still further.

(The Journal is indebted to Forrest E. Linder, Ph.D., director, U. S. National Health Survey, for assistance in the preparation of this editorial.)

American Achievement in Public Health

THIS HISTORY of public health is the story of perhaps the most significant social movement of modern times. As a consequence of this far-reaching development, the human life span has to an increasing degree come under the control of the human will. To this movement the United States has made

important, even fundamental, contributions.

For a long time, Americans based their actions in dealing with public health problems on European practices and experience. In 1897, Hermann M. Biggs still hailed England as the source of "guidance and direction in matters connected with the public health. . . ." Three years later, Walter Reed reported to the American Public Health Association that "the mosquito acts as the intermediate host for the parasite of yellow fever." These two events mark a turning point in the place of the United States in public health. American public health at this time emerged from foreign tutelage and began to forge ahead independently.

Since then the public health movement in the United States has moved ahead to a position of world leadership, and Americans may well be proud of its achievements. We owe a deep debt of gratitude to the pioneers who created the foundations on which we and others throughout the world now build. Many were the men and women who contributed to this result, and not all of them can be named. But some should, indeed must, be recalled.

• Daniel Drake (1785–1852) surveyed and investigated the problems of health and sanitation connected with the settling of the West.

• Hermann M. Biggs (1859–1923) a pioneer in tuberculosis control, gave the public health laboratory its start.

• S. Josephine Baker (1873–1945) established child care and the protection of mothers as a function of local government.

• Theobald Smith (1859–1934) demonstrated the crucial importance of insect vectors in the transmission of disease (cattle tick fever).

• William Hallock Park (1863–1939) was the foremost exponent of applied bacteriology. Millions of children throughout the world owe their lives to him. He is best known for his work in diphtheria control, especially through immunization. In addition, his contributions to milk sanitation, and the control of tuberculosis, pneumonia, typhoid fever and many other illnesses made him an outstanding figure in public health.

• Joseph Goldberger (1874–1929) solved the riddle of pellagra by showing that it was a deficiency disease due to lack of vitamin B_2.

• William H. Welch (1850–1934), bacteriologist, pathologist and medical statesman, established a pattern for the training of public health workers in the United States and as a consequence in many other places throughout the world.

• Charles-Edward Amory Winslow (1877–1957), a truly outstanding leader of public health in the United States and in the world, ranged far and wide in dealing with the community and its health problems, and left a lasting imprint on public health in the United States and throughout the world.

These are but a few of the ways in which the United States has contributed to the furtherance of public health. This takes no account of the achievements of those still living. They will be judged by those who come after us. But, however we look at the matter, the fact remains that these contributions have led to an unprecedented improvement of public health undreamed of at the turn of the century. Furthermore, the horizon of public health is no longer limited to the local or even the national unit. Today, it extends outward to the international community. And as Americans have contributed importantly to the shape of public health in the 20th century, so we believe they will continue to help shape the public health of the future.

LETTERS TO THE EDITOR

To the Editor:

The recent report of the Ad Hoc Committee of the Surgeon General of the United States, after weighing the advantages and disadvantages of BCG vaccination, states: "It is believed, however, that the advantages of vaccination outweigh the disadvantages for tuberculin negative persons who are exposed to a definite risk of infection, especially if they cannot be retested frequently with tuberculin."

This committee recommended BCG vaccination for those groups recommended by the American Trudeau Society, the American College of Chest Physicians, the American Medical Association, and the Medical Advisory Committee of Research Foundation.

The specific groups recommended for BCG vaccination by the American Trudeau Society are:

1. Doctors, medical students, and nurses who are exposed to tuberculosis;
2. all hospital and laboratory personnel whose work exposes them to contact with the bacillus of tuberculosis;
3. individuals who are unavoidably exposed to infectious tuberculosis in the home;
4. patients and employees in mental hospitals, prisons, and other custodial institutions in whom the incidence of tuberculosis is known to be high;
5. children and certain adults considered to have inferior resistance and living in communities in which the tuberculosis mortality rate is unusually high.

There have been numerous inquiries from all parts of the United States as to where BCG vaccine may be obtained. In order to assist those interested, the following information is offered:

BCG vaccine may be obtained by any licensed physician in the United States and its territories by writing to the laboratories of Research Foundation and the University of Illinois, the only institutions licensed to produce and distribute BCG in this country. The address of Research Foundation is: 70 West Hubbard Street, Chicago 10, Illinois.

Sol Roy Rosenthal, M.D., Ph.D.
Medical Director, Research Foundation, and Director, Institution for TB Research, University of Illinois, Chicago, Ill.

April 21, 1958

To the Editor:

I cannot allow to pass unchallenged the picture of the present state of milk hygiene in Great Britain given by Professor Burrow of the Veterinary School in the University of London and reported in the April, 1958, issue of the American Journal of Public Health.

However erudite Professor Burrow may be in veterinary medicine he does not appear to be accurately familiar with the present state of milk hygiene in Britain.

Nor has he got his facts on milk legislation quite correct. There was no Milk and Dairies Act passed in 1915 for Great Britain. Such an act was passed earlier for Scotland—the northern nation forming part of this small island.

The present writer has been in very intimate contact with the producing side of the dairy industry in Scotland for 40 years and has tested many thousands of farm milk samples for keeping qualities and hygienic standards generally. Farm hygiene and methods of milk production in Scotland and bacterial counts and keeping qualities of Scotland's milk can compare favorably with those of other dairying countries. Milk quality in Scotland generally is superior to that of many other dairying countries and in no way inferior to the milk supply of any country.

In Scotland well over 90 per cent of the milk comes from tuberculin-tested

herds. Such specially supervised milks must conform with severe coliform and plate count standards and 90 per cent of all such samples tested by public health authorities comply with the prescribed standards for such milk. This work is rightly under the charge and supervision of the medical officers of the local authorities whose job it is to protect the public health and guard the quality and safety of the milk supply, constituting as it does such a widely used foodstuff.

Professor Burrow on page 455 of the Journal stresses the potential help of the veterinary surgeon on his everyday farm visits in advising the milk producer on animal health and milk hygiene. Such zeal is only very recently acquired. Until comparatively recently Great Britain's milk herd was most seriously infected with tuberculosis and the veterinary surgeons were regularly engaged in farm visits. The agitation and demand for tubercle-free herds—now largely accomplished in Scotland—came from an intelligent public and not primarily from veterinary surgeons, although there were a few honorable exceptions.

Professor Burrow on page 455 criticizes the authorities for insisting on dairy steam sterilization since hypochlorite is equally satisfactory. In Scotland chemical sterilization of dairy equipment has always been and still is expressly forbidden in the farm dairy. Insistence on heat sterilization in Scotland has been the chief factor in making possible the provision of a public milk supply far ahead in every way of the milk of Professor Burrow's own country.

At the foot of page 456 Professor Burrow says the picture of milk hygiene in Great Britain is not pretty. He is looking at the picture through colored glasses and does not see the picture clearly. In casting doubt on heat treatment of milk—so widely adopted as essential when milk has to be sent hundreds of miles to large centers of population—he must be thinking of the days prevailing generations ago when the villager collected his milk at the farm cowshed and frequently collected tuberculosis with it.

Milk production has gone up steadily in this country. Milk quality has steadily improved. The public get a safe and healthy milk and have not suffered from any scare of inherent danger due to pathogenic bacteria lurking in this all important foodstuff. In 1956 food-poisoning cases investigated by local authorities in England and Wales numbered 7,713. Of the 4,500 cases in which the cause was finally determined only four cases were traceable to milk and three of these milks were raw milks of farm origin. Hygienic advances are not the results of veterinary efforts, but have been made possible by the advisory work of extension staffs of agricultural colleges, other advisory services, and public health organizations.

Professor Burrow in the last paragraph of his published address, having vigorously condemned the present supervision of milk in Britain, asks the American public not to think "that the British public are provided with a milk supply which is completely out of line with modern ideas of milk hygiene."

It is the Professor's ideas and knowledge of the position of milk in this country which require further thought.

D. Murray Smillie, B.Sc., N.D.A., N.D.D. (Hon.), Professor of Dairying and Specialist Advisory Officer, West of Scotland Agricultural College, Auchincruive, Ayr, Scotland.

May 9, 1958

86th ANNUAL MEETING

HOW TO MAKE HOTEL RESERVATIONS FOR THE ST. LOUIS MEETING

A HOUSING BUREAU will be operated by the St. Louis Convention Bureau. Since all requests for rooms will be handled in chronological order, you are urged to send in your reservation as quickly as possible on the form below. (See map with location of hotels on page 930).

HOTELS HOLDING ROOMS FOR THE APHA AND RATES*

Hotel	*Single*	*For Two Persons* *Double Bed*	*Twin Beds*
Ambassador-Kingsway	$ 6.50-$ 9.00	$ 9.00-$14.00	$10.00-$14.00
Baltimore	3.50- 7.50	5.00- 9.00	6.00- 10.00
Bel Air Motor Hotel	8.00- 11.00	9.00- 15.00	10.00- 16.00
Chase	9.50- 13.00	13.00- 16.00	14.00- 17.00
Claridge	4.50- 8.00	6.50- 10.00	7.50- 12.00
Coronado	7.50- 12.00	9.50- 16.00	13.50- 16.00
DeSoto	4.00- 6.50	6.00- 7.50	8.00- 10.00
Lennox	6.50- 11.00	7.50- 11.00	11.00- 13.00
Mark Twain	6.00- 9.00	8.00- 10.50	10.00- 11.50
Mayfair	6.50- 11.00	7.50- 13.00	11.00- 12.00
Melbourne	6.25- 9.75	8.75- 10.75	11.50- 13.75
Park Plaza	11.00- 15.00	15.00- 17.00	15.00- 20.00
Sheraton-Jefferson	7.50- 10.50	10.50- 13.50	13.00- 17.00
Statler	7.00- 12.00	10.00- 14.00	11.50- 15.00
Warwick	4.50- 8.00	7.50- 10.00	8.50- 12.00

* Parlor Suites available in all these hotels. Rates on request.

HOTEL RESERVATION FORM

MAIL TO: Miss Shirley Woerner, Manager
Hotels Convention Reservation Bureau, APHA
911 Locust Street, Room 406
St. Louis 1, Mo.

.....1958
(Date)

Please make the following reservation:

Hotel .....First Choice

Hotel .....Second Choice

Hotel .....Third Choice

Single rooms are very scarce; please arrange for sharing if possible

Arrival 1958

Departure 1958

..... Single room(s) for ..... person(s). Rate $..... to $..... per room

..... Double Bedroom(s) for ..... person(s). Rate $..... to $..... per room

..... Twin Bedroom(s) for ..... person(s). Rate $..... to $..... per room

The names and addresses of all persons who will occupy the room(s) requested must be listed. Please be sure to indicate arrival and departure hours and dates. If you wish to cancel or make any change in your reservation, write to the Hotels Convention Reservation Bureau, and *NOT* the hotel to which you were assigned.

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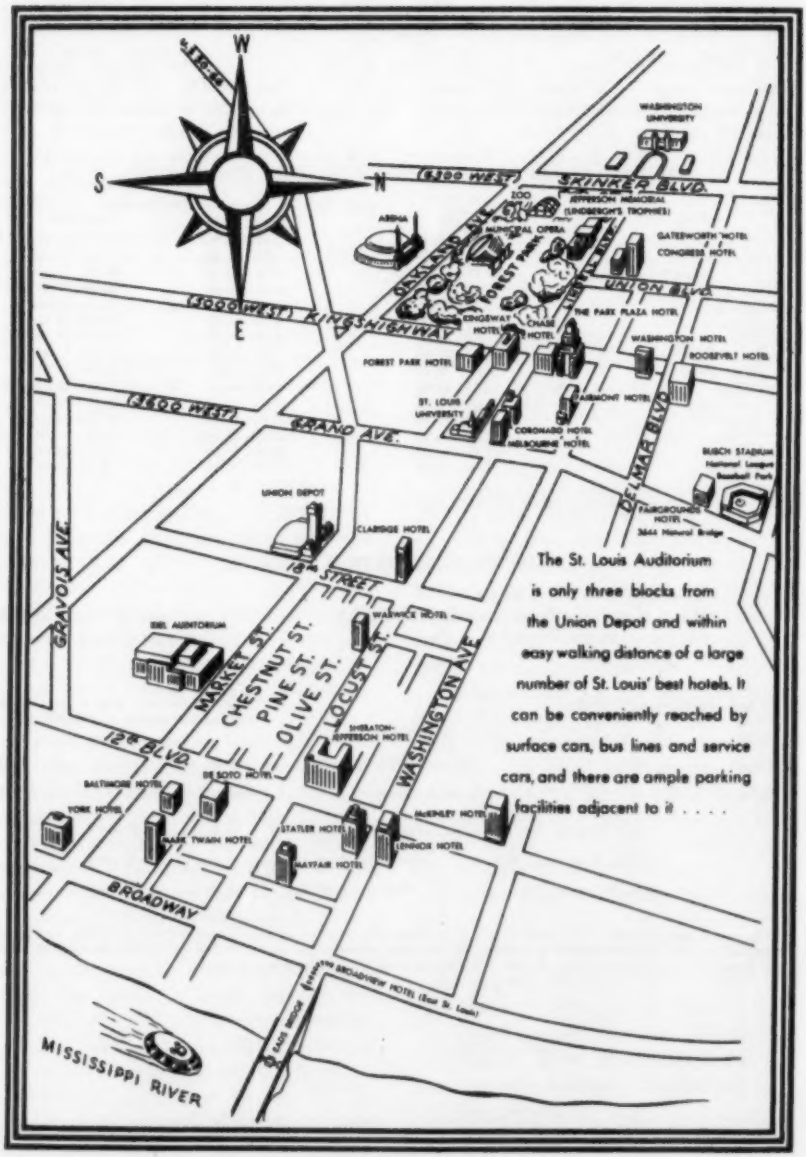
Name of Applicant .....

Street ..... City ....., ... Zone .... State .....

Note: You will receive confirmation direct from the hotel.

Map of Downtown St. Louis Showing the Location of Hotels and Kiel Auditorium



ASSOCIATION NEWS

EIGHTY-SIXTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
ST. LOUIS, MO.—OCTOBER 27–31, 1958

New APHA Staff Members

Two new workers have been added to the staff of the Association as a result of the decisions of the Governing Council and grants made by the Rockefeller Foundation and the W. K. Kellogg Foundation. Thomas R. Hood, M.D., M.P.H., a native of Kansas, takes office on August 1 as associate executive director. Dr. Hood has since 1951 been executive secretary of the Kansas State Board of Health, having previously been on the staff as director of the Division of Local Health Administration. Earlier, he was for two and half years director of the Kansas School Health Demonstration in Cowley County in Kansas, with previous experience as health officer of Douglas County. During the war he was venereal disease control officer in the U. S. Army with the rank of Major.

Thomas R. Hood, M.D., M.P.H.

Robert E. Mytinger, M.P.H.

Dr. Hood has an M.D. degree from the University of Kansas Medical School and an M.P.H. from the Harvard School of Public Health. He became a Fellow of the Health Officers Section, APHA, in 1949. Dr. Hood has served as a member of the Salary Study Subcommittee of the Committee on Professional Education, was for three years ending

in 1956 the representative of the Kansas Public Health Association on the Governing Council, and is currently a member of the Executive Board.

On July 11, Robert Mytinger, M.P.H., currently secretary of the Public Health Committee of the Paper Cup and Container Institute, will open the Western Regional Office of the APHA in San Francisco as its director. Mr. Mytinger, a native of South Dakota, received a B.S. in public health from the University of California at Los Angeles and an M.P.H. from the University of California School of Public Health. Before going to the Paper Cup and Container Institute, he was for two years associate campus sanitarian at the University of California at Los Angeles, and for a year and a half training and publications officer in the U. S. Navy Bureau of Medicine and Surgery. Mr. Mytinger has been active in the development and administration of the Paper Cup and Container Institute's Crumbine Awards in Sanitation and in the National Association of Sanitarians.

Radiation Protection Act Draft

A suggested draft of a State Radiation Protection Act has been prepared by the Program Area Committee on Radiological Health of the Association's Technical Development Board. This has been prepared in two forms, one with provision for a commission, one without such a provision.

Copies of these two drafts are available without charge from the Book Service, APHA, 1790 Broadway, New York 19.

SCHOOLS OF PUBLIC HEALTH ACCREDITED, 1958–1959

On recommendation of the Committee on Professional Education, the Executive Board of the American Public Health Association has reaccredited for 1958–1959 the 13 schools of public health in the United States and Canada heretofore accredited. Each of the 13 schools are accredited for the master of public health degree (M.P.H. in the United States, diploma of public health, or D.P.H. at the University of Montreal and the University of Toronto). Nine of the schools are accredited also for the degree of doctor of public health (Dr.P.H.); four are accredited for a special master's degree with specialization in public health education. Some of the other schools give the M.P.H. to health educators.

Of the 13 schools, 10 are in continental United States, one in the Commonwealth of Puerto Rico, and two in Canada. The school at the University of Montreal is the only school in the Western Hemisphere in which the teaching is given in French. In the University of Puerto Rico the teaching is in Spanish.

The 13 schools give graduate public health degrees to some 700 persons annually of whom between 70 and 75 per cent receive the master of public health degree. For the past two years between 20 and 30 per cent of the student body has been made up of students from countries other than the United States and Canada.

The budgets of the 13 schools currently total more than 12 million dollars, almost evenly divided between effective teaching budgets and special research grants. In the most recent academic year four of the schools had larger funds through special research grants than in the effective teaching budget.

The list of schools accredited and the degrees for which they are accredited for 1958–1959, together with the names of the deans or directors, follows:

Institutions Accredited by the American Public Health Association for the Academic Year 1958–1959

Institution	Degrees for Which Accredited		
		Master's	
	Dr.P.H.	M.P.H.	Other (P.H.Ed.)
California, University of School of Public Health, Berkeley 4, Calif. C. E. Smith, M.D., Dean	X	X	—
Columbia University School of Public Health and Administrative Medicine, New York 32, N. Y. Ray E. Trussell, M.D., Executive Officer	X	X	—
Harvard University School of Public Health, Boston 15, Mass. John C. Snyder, M.D., Dean	X	X	X
Johns Hopkins University School of Hygiene and Public Health, Baltimore 5, Md. E. L. Stebbins, M.D., Director	X	X	—
Michigan, University of School of Public Health, Ann Arbor, Mich. H. F. Vaughan, Dr.P.H., Dean	X	X	—
Minnesota, University of School of Public Health, Minneapolis 14, Minn. G. W. Anderson, M.D., Director	—	X	X
Montreal, University of School of Hygiene (Teaching in French), Montreal, Quebec, Canada Armand Frappier, M.D., Dean	—	X (D.P.H.)	—
North Carolina, University of School of Public Health, Chapel Hill, N. C. E. G. McGavran, M.D., Dean	X	X	X
Pittsburgh, University of Graduate School of Public Health, Pittsburgh 13, Pa. Thomas Parran, M.D., Dean	X	X	—
Puerto Rico, University of Department of Preventive Medicine and Public Health, San Juan 22, Puerto Rico Edward Grzegorzewski, M.D., Chairman	—	X	—
Toronto, University of School of Hygiene, Toronto 5, Ontario, Canada Andrew J. Rhodes, M.D., Director	—	X (D.P.H.)	—
Tulane University Medical School Department of Tropical Medicine and Public Health, New Orleans 12, La. M. E. Lapham, M.D., Dean	X	X	—
Yale University Department of Public Health, New Haven, Conn. Ira V. Hiscock, Sc.D., Chairman	X	X	X

NEWS OF AFFILIATED SOCIETIES AND BRANCHES

Another Affiliate "Get-Together"

Last year, at the APHA Cleveland meeting, the Committee on Affiliated Societies and Branches played host to representatives of the APHA Affiliates at a breakfast get-together. The presidents, secretaries, and appointed delegates of 33 of 43 Affiliated State Societies and the Southern and Western Branches met to air their problems informally.

The committee, describing such meetings as "terribly fundamental," is now planning on a second and more leisurely gathering. Invitations have recently gone to the presidents and secretaries of each state society and branch with a request that a representative be appointed in the event that neither the president nor secretary can attend.

The committee realizes that each state and branch has a stake in the work of interpreting the relationship between the APHA and its affiliates. Full representation at this meeting will best give the committee the scope it needs to carry out its assignment. The date is October 25, the Saturday preceding the APHA Annual Meeting in St. Louis, beginning at 2 p.m. to go through dinner and into the evening.

Illinois Association Meets

Several hundred public health workers attended the scientific sessions of the Illinois Public Health Association's 18th annual conference in Peoria, April 10 and 11. The program featured discussions of public health problems facing the state and nation. In the opening session, Charles F. Sutton, M.D., deputy director, Division of Local Health Services of the State Department of Public Health, introduced the general theme of the conference program—Demonstrating Public Health in the Heart of Illinois. Emphasizing that "the heart of Illinois is in its people, wherever they may be," Dr. Sutton reviewed health services and progress in many local areas of the state.

Among the highlights of the meeting was an address by Berwyn F. Mattison, M.D., executive secretary of the American Public Health Association, on "Is Public Health Keeping Up with the Public?" It is important that people accept disease-prevention measures already made available by medical science, said Dr. Mattison. He deplored the fact that more than 40 million Americans under 40 years of age have not had a single injection of Salk vaccine to protect them against poliomyelitis. A similar situation developed with respect to the vaccine for the Asian strain of influenza. Likewise many communities are hesitant to accept the fluoridation of public water supplies, important to dental health, particularly of children.

In line with the general theme of the conference section meetings covered such subjects as community cooperation in rehabilitation, visual screening in schools of the Peoria area, and health, safety, and environmental sanitation programs of various industries in that city. Other subjects discussed included: "Nutrition and Weight Control Programs," "Present Status of Poison Control in Downstate Illinois," "Recognition and Control of Streptococcal Infections and Rheumatic Fever," and the "Role of Official Health Agencies in Civil Defense."

Installed as president of the Illinois Public Health Association for the ensuing year was Louis W. Pickles, sanitary engineer, Peoria Health Department, succeeding John E. Egdorf, executive director, Tuberculosis Institute of Chicago and Cook County.

Other officers are:

President-Elect—Herman N. Bundesen, M.D., president, Chicago Board of Health

Secretary-Treasurer—William J. Hixon, health educator, Evanston Health Department
Representative to the Governing Council, APHA—Benn J. Leland, sanitary engineer, Illinois Department of Public Health

The 19th annual meeting of IPHA will be held at the Morrison Hotel, April 9–11, 1959, Chicago, Ill.

Interagency Communications Theme

The Oklahoma Public Health Association met at Texoma Lodge for its 17th annual meeting, March 5–7, 1958. The theme, "Interagency Communications," was explored at the first general session in two talks. Stewart Wolf, M.D., chairman of the Department of Medicine, outlined the factors that affect the success of teamwork; Berwyn F. Mattison, M.D., executive secretary of the American Public Health Association, in "Public Health Versus Public Agencies" expressed his deep conviction as to the importance of voluntary agencies and their contributions to public health.

Two other general sessions, one meeting of each of six sections, and a dinner and dance each of two evenings completed the program. Water quality conservation, urban renewal, the state's mental retardation program, the public health traineeship program, were among other subjects discussed.

At the final session, Josephine Daniel, R.N., director, Division of Nursing in the State Health Department, was honored with a plaque by the nurses' section. She was cited for outstanding leadership and contribution to nursing in Oklahoma.

K. W. Navin, M.D., director of the Pottawatomie County Health Department, was succeeded in the presidency by Wilson David Steen, extension specialist, Health Services, University of Oklahoma, Norman. Other newly elected officers are:

President-Elect—Mozelle Ewing, R.N., public health nurse, Muskogee County Health Department
Vice-President—Richard M. Burke, M.D., director, Tuberculosis Unit, Oklahoma State Department of Health
Secretary-Treasurer—Marjorie Butler, clerical consultant, Division of Local Health Service, Oklahoma State Department of Health
Representative to Governing Council, APHA—John W. Shackelford, M.D., director, Local Health Service, Oklahoma State Department of Health

The Oklahoma Association also took pride in its journal which began publication during the year. The January, 1958, issue of this quarterly was the third. It is designed for technical articles and news of the Association and its members.

Wisconsin Meets with Middle States

"Changing Times and Community Health" was the theme of the joint meeting of the Wisconsin Association for Public Health, the Middle States Public Health Association, and the Wisconsin Public Health Council in Milwaukee, April 28–30. Four general sessions and two half-day meetings of each of six sections were held.

At the opening general session the keynote address was made by John D. Porterfield, M.D., Deputy Surgeon General. "Public health is not just a problem to be solved; it is a reality to be experienced," said he. "Man as a social being can achieve, within the limits of his physical universe, his own desirable destiny in health and well-being. . . . It is still my firm belief that any local health department, any local community, any local health officer still has the same opportunity which Henry Ford or the Wright brothers had when they were tinkering creatively in a dingy shed and emerged as midwives to a new era. As the Model T was merely a practical application of much that was already known, so the local health officer with creative imagination may develop the applications of research discoveries."

At the second general session, H. van Zile Hyde, M.D., chief of the Public Health Service's Division of International Relations, reported on the U. S. Mission to the U.S.S.R., illustrating his talk with colored slides taken inside Russia.

One meaty afternoon was devoted to "Urbanization and Fringe Area Problems," "Radiation Hazards," "Local Services for the Aging," and "High-Level Wellness of Man and Society." The last-named discussion was led by Halbert L. Dunn, M.D., Ph.D., chief, National Office of Vital Statistics. He defined health as "not a state but a process" and the healthy person as one able to deal with both his physical and social environment, not merely a person without active disease. "The goal of high level wellness is ever-expanding . . . and as it becomes clearer . . . we will fight for (it) even as we have fought so long and valiantly against sickness and death." * This concept, together with possibilities of statistical and qualitative research in the nature and feeling of positive health, has been developed in detail by Dr. Dunn in recent months, as witness his recent course on "The Health Process: High-Level Wellness for Man and Society" at the New School for Social Research in New York City.

Among the subjects discussed in section meetings were "Public Relations in Joint Local Health Programs" (school and community health education), "Solving (sanitation) Problems Through Intrastate Cooperation," "Evaluation of Public Health Programs," and "Health Education Opportunities in Vital Statistics."

Fred Long, M.D., commissioner of health, Peoria Health (Ill.) Department, succeeded Leonard C. Murray, Ph.D., director of health education, Iowa State Health Department, as president of the Middle States Association. Charles K. Kincaid, M.D., Madison health commissioner succeeded Margaret E. Hatfield, M.D., M.P.H., health officer, District 2, State Health Department, as president of the Wisconsin Association for Public Health.

Missouri and the World Around It

The Missouri Public Health Association met in Columbia May 5–7. Although no specific theme was announced, there was strong interest in more than parochial matters. For example, the Business and Statistics Section devoted its day to five concurrent group meetings discussing the role of the voluntary agency—in organizing community health groups, in stimulating interest in a community health program, in consultation as experts in the field of health, in direct service in the control of disease, and in supporting the official agency. The day was concluded with a guest speaker from the local Stephens College and a tour of its health facilities.

Among the discussions of the Health Officers Section was one on "Future Plans for Preventive Medicine and Public Health at the University Medical Center." (It will be remembered that the University of Missouri Medical School has only recently become a full four-year school.) Both the Health Officer and Laboratory Sections met at the Medical Center and were greeted by the assistant dean, Frank B. Engley, Jr., Ph.D. The latter group toured the medical center.

The presidential address was given at the opening session by the retiring president, E. R. Price, D.V.M. Here, also, A. L. Chapman, M.D., chief, Division of Special Health Services, Public Health Service, led a discussion on "Care of the Aged." Among other subjects discussed in section meetings were "Research Advances in Public Health Microbiology," "Operations of Public Health

* Dr. Dunn's paper will be published in a forthcoming issue of the American Journal of Public Health.

Laboratories During Disasters," "Public Health Service Training Officer Activities," and "Human Relations Begin with You." The final meeting of the Sanitation Section included a "Pictorial Tour of Europe" in which Walter E. Casey, C.E., of the Washington district office of the State Division of Health, showed movies taken on his recent visit to Europe.

At the banquet session the 1958 W. Scott Johnson Award was presented to S. B. Beecher, health officer, Poplar Bluff District Office, State Division of Health, "for outstanding contribution to public health in Missouri during the year."

The final general session was devoted to "The Farming Industry and Public Health." Clyde M. Berry, Ph.D., associate director of the University of Iowa's Institute of Agricultural Medicine, made the chief address and led the discussion.

Newly elected officers are:

President—J. Paul Guidry, D.D.S., Kirkwood
President-Elect—Robert L. McNamara, Ph.D., professor of rural sociology, University of Missouri, Columbia
Vice-President—Jeannette Burchard, director, Southwest Branch Laboratory, State Division of Health, Springfield
Secretary-Treasurer—Nadia Craver, State Division of Health, Jefferson City (reelected)

The 1959 Annual Meeting will be held in St. Louis, May 18–20.

South Carolina Sums Up 3,000 Years

The theme, "Public Health, The Career," inspired the South Carolina Public Health Association to establish awards for long years of active public health service. This practice was initiated at the 35th annual meeting, May 22–24, 1958, at Myrtle Beach. Throughout the state, with at least 20 years of service, a total of 132 public health workers received lapel pins, ranging from sterling silver to gold with a diamond, according to length of service. The aggregate years of service to the profession was more than 3,000. The awards are planned to be given annually.

Nathan Sinai, Dr.P.H., professor of public health and director, Bureau of Public Health Economics, University of Michigan School of Public Health, was the keynoter to a registered attendance of 433 members and guests at the first general session. John D. Porterfield, M.D., Deputy Surgeon General, Public Health Service, further developed the theme at the final general session with a talk of "The Forward Look in Your Public Health Career." Dr. Porterfield, as chairman of the Executive Board, APHA, extended the greetings of the American Public Health Association.

In addition to three general sessions, each of five sections held two meetings each. "Everyone entered into the spirit" of an evening costume ball at which there was "a wonderful arrangement of varied, amusing, interesting, and beautiful costumes."

Retiring President Summers V. Pringle, administrator and sanitation consultant, Beaufort County Health Department, announced the newly elected officers as follows:

President—C. E. Ballard, M.D., director, Oconee and Pickens Counties Health Department
President-Elect—Elizabeth Davis, health education consultant, State Health Department
Vice-President—J. N. Holtzclaw, M.D., health officer, Greenville County Health Department
Secretary—Laura M. DeMarse, Personnel Section, State Health Department
Treasurer—Cecil C. Seigler, director, Finance Section, State Health Department
Representative to Governing Council, APHA—G. S. T. Peeples, M.D., state health officer

New York City Awards and Elects

The annual meeting of the New York City Public Health Association was held on June 6 to present annual achievement awards and to elect officers. Dr. William Spring, vice-president of the Association reported on the group meetings during the year, each of which discussed a separate public health prob-

lem in three or four separate meetings. He reported that they were so successful that they will be continued in the coming year.

The newly established Haven Emerson Memorial Award was presented to Katherine M. Burri, R.N., of the Bureau of Public Health Nursing in the City Department of Health. Mrs. Burri was cited particularly for her pioneering in many department activities in which she coordinated the services of social workers, nurses, x-ray technicians, and others. The presentation address was made by Roscoe P. Kandle, M.D., deputy commissioner of health, New York City. He emphasized particularly the public health aspects of Dr. Emerson's catholic public health and medical interests. He cited especially his 20-year membership on the New York City Board of Health, his founding of the Columbia University School of Public Health, his authorship of "Administrative Medicine," and his plans for coverage of the country with local health services as outlined in "Local Health Units for the Nation." Dr. Emerson, one-time president of the American Public Health Association and winner of both its Sedgwick Memorial Medal and a special Lasker Award in Public Health Administration, died on May 21, 1957, at the age of 82.

Outstanding service awards were presented to 10 other public health workers as follows:

Joseph H. Kauffman, D.D.S., practicing dentist, for activities in dental health education.

Robert S. Siffert, M.D., City Department of Health physician, for contributions to the administration of the Health Department activities for orthopedically handicapped children.

Shirley Decker, social worker, Herald Tribune Fresh Air Fund, for making summer camp activities available to handicapped children.

Iva Bennett, nutritionist, City Department of Health, for participation in the WNYC station program "Listening to Nutrition."

Jerome Diamond, district supervisor, Jewish Family Service, for spear-heading a program of mental health education through training group leaders in parent education, counseling of adolescents, and guidance to aged persons.

Otto H. Kerkmann, National Foundation for Infantile Paralysis, for administering the importation and handling of thousands of monkeys for use in preparation of the Salk polio vaccine.

William Kellerman, health inspector, City Department of Health, for complete dedication to his duties and full knowledge of the work of his department.

Simon Podair, Brooklyn health education coordinator, City Department of Health, for organizing highly successful borough-wide education programs in cooperation with the Kings County Medical Society and the Brooklyn Institute of Arts and Sciences.

Johanna Olchewsky, librarian, Institute for the Crippled and Disabled, for 41 years' service as librarian for the Institute, during which time she built up one of the world's leading and most comprehensive rehabilitation libraries.

Sidney Goldberg, Department of Laboratories, City Department of Health, for his organization of a laboratory unit for the typing of staphylococci.

The outgoing secretary-treasurer, Joseph Kadish, Ed.D., senior health educator, Health Insurance Plan of Greater New York, announced a balance of $285 in the budget. On recommendation of the Nominating Committee, separate officers were elected for secretary and treasurer.

Sylvan Furman, director of the New York City Mental Health Association, succeeded Samuel Dooley, M.D., executive director, National Cancer Foundation, as president of the Association. Other newly elected officers are:

Vice-President—Abe Brown, assistant director, Bureau of Public Health Education, City Health Department

Secretary—Allan Marlowe, executive secretary, Fort Greene District Health Committee, Brooklyn Tuberculosis and Health Association

Treasurer—John Barra, health educator, City Health Department

Representative to the APHA Governing Council—Nathaniel Cooper, M.D., M.P.H., director of health, Community Council of Greater New York

APHA AFFILIATED SOCIETIES AND BRANCHES

SOCIETY AND SECRETARY

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ARIZONA PUBLIC HEALTH ASSOCIATION, Mrs. Verona Massey, State Dept. of Health, Phoenix
ARKANSAS PUBLIC HEALTH ASSOCIATION, Mrs. Vada Russell, State Health Dept. Bldg., Little Rock
CALIFORNIA, NORTHERN, PUBLIC HEALTH ASSOCIATION, Emanuel H. Pearl, 2220 Moorpark Ave., San Jose 28
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KENTUCKY PUBLIC HEALTH ASSOCIATION, Mrs. Rosalie Walters, 620 S. Third St., Louisville 2
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MASSACHUSETTS PUBLIC HEALTH ASSOCIATION, Mrs. Elizabeth K. Caso, Dept. of Health, Cambridge
MICHIGAN PUBLIC HEALTH ASSOCIATION, Maurice J. Mayer, 405 Hollister Bldg., Lansing
MINNESOTA PUBLIC HEALTH CONFERENCE, D. S. Fleming, M.D., State Dept. of Health, University Campus, Minneapolis
MISSISSIPPI PUBLIC HEALTH ASSOCIATION, H. E. Boone, P. O. Box 1700, Jackson
MISSOURI PUBLIC HEALTH ASSOCIATION, Mrs. Nadia Craver, 5th Fl., State Office Bldg., Jefferson City
MONTANA PUBLIC HEALTH ASSOCIATION, Elizabeth Bishop, M.D., P.O. Box 638, Hardin
NEBRASKA PUBLIC HEALTH ASSOCIATION, Orville D. DeFrain, Lincoln-Lancaster County Health Dept., Lincoln
NEW MEXICO PUBLIC HEALTH ASSOCIATION, Robert Howell, 305 Terrace Ave., N.E., Albuquerque
NEW YORK CITY, PUBLIC HEALTH ASSOCIATION OF, Allan Marlowe, 295 Flatbush Ave., Brooklyn 1
NEW YORK STATE PUBLIC HEALTH ASSOCIATION, Mrs. Kathleen Boland, State Dept. of Health, 84 Holland Ave., Albany
NORTH CAROLINA PUBLIC HEALTH ASSOCIATION, R. W. Brown, Bucombe County Health Dept., Asheville
NORTH DAKOTA PUBLIC HEALTH ASSOCIATION, Jean E. Norton, R.N., Box 133, Bismarck
OHIO PUBLIC HEALTH ASSOCIATION, Virginia Jones, Ohio Dept. of Health, Dayton
OKLAHOMA PUBLIC HEALTH ASSOCIATION, Marjorie Butler, 3400 North Eastern, Oklahoma City
OREGON PUBLIC HEALTH ASSOCIATION, Christie Corbett, R.N., State Board of Health, Portland
PENNSYLVANIA PUBLIC HEALTH ASSOCIATION, Robert H. Conn, 303 N. Second St., Harrisburg
PUERTO RICO PUBLIC HEALTH ASSOCIATION, Mrs. Virginia V. de Lara, Dept. of Health, San Juan 2
SOUTH CAROLINA PUBLIC HEALTH ASSOCIATION, Mrs. Laura M. DeMarse, State Health Dept., Columbia
SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION, Alice Brady, R.N., State Dept. of Health, Pierre
TENNESSEE PUBLIC HEALTH ASSOCIATION, C. B. Tucker, M.D., State Dept. of Health, 420 Sixth Ave., N., Nashville
TEXAS PUBLIC HEALTH ASSOCIATION, Wayne H. Garrett, City Hall, Fort Worth
UTAH PUBLIC HEALTH ASSOCIATION, Mrs. Virginia Cole, City Health Dept., 115 S. State St., Salt Lake City
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WASHINGTON STATE PUBLIC HEALTH ASSOCIATION, Jack E. Mathews, State Dept. of Health, Smith Tower, Seattle
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SOUTHERN BRANCH, A.P.H.A., Betty Ficquett, State Board of Health, Columbia, S. C.
WESTERN BRANCH, A.P.H.A., Mrs. L. Amy Darter, State Dept. of Health, 2151 Berkeley Way, Berkeley, Calif.

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Nuclear Research in Medicine News

In preparation for the 1958 Conference on Peaceful Uses of Atomic Energy scheduled for Geneva, September 1–13, the Chronicle of United Nations Activities has inaugurated a service to supply the medical profession with the conference materials. Presently available are lists of papers to be presented, including several hundred papers dealing with medical news from the major laboratories of the world. The topics include uses of isotopes in medicine, in human, plant, and animal physiology, biological effects of radiation such as radiation sickness, leukemia, acceleration of agency, among others.

The lists may be obtained free from Document Service, Department PM, The Chronicle of United Nations Activities, 234 West 26th St., New York 1.

EMPLOYMENT SERVICE

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages. **Closing date** for receipt of advertisements is the first of the month preceding the desired month of publication. **All correspondence should be sent to the American Public Health Association, 1790 Broadway, New York 19, N. Y.**

POSITIONS AVAILABLE

Residency in Public Health—Two-year Board-approved residency in well established health department in California. Salary $755 per month; maximum age 35 years; California license required. Apply **Box PH-81,** Employment Service, APHA.

Public Health Physicians—for overseas employment. Salary range of $9,000–$14,000, plus liberal allowances. Vacancies in Near and Far East. Essential qualifications are formal training or experience in public health and willingness to accept assignment for minimum of two years. Contact Public Health Division, International Cooperation Administration, Washington 25, D. C.

Qualified Public Health Physician—Needed to organize, direct, and supervise all activities of city public health department to be established, to serve Waterloo, Iowa, a city of 79,000. M.D. and M.P.H. required. Salary $15,000. Plan later to expand service to a county program, at which time county will add to salary. County population exceeds 116,000. Contact Mark A. R. Kuhn, M.D., 1016 W. Fourth St., Waterloo, Iowa.

District Health Officer—Two positions in Missouri. One with headquarters at Springfield, consisting of 19 counties in the Ozarks and Shepherd of the Hills country. The other is in northeast Missouri with 18 counties. To direct the activities of the personnel of the district office, offer supervision to county nursing services in the area and consultation and assistance to county health units. **Health Officer II,** or **Health Officer III,** will be considered. Health Officer II requires two years' experience with an M.P.H.; salary $11,000–$14,000. Health Officer, III, six years' experience with an M.P.H.; salary $13,000–$16,000. Travel allowance, state retirement and Social Security, merit system provisions for vacation and sick leave. Write to H. M. Hardwicke, M.D., Acting Director, Division of Health, State Office Bldg., Jefferson City, Mo.

Health Director—for growing county of 65,000 located adjacent to Kansas City, Mo. Modern health center recently completed. Three-year-old department with excellent opportunity for program development. Public health degree with some experience required. Salary open. Make application to Edward H. Fischer, M.D., 306 E. 21st Ave., North Kansas City, Mo.

Deputy Health Officer—for population of 630,000, with teaching responsibility in medical college. Combined beginning salary $10,740. Eligibility for license in Alabama and eligibility for certification by Board of Preventive Medicine required. Apply to Health Officer, Jefferson County Department of Health, P. O. Box 2591, Birmingham 2, Ala.

The West Virginia State Health Department is recruiting for the following vacancy: **Director, Division of Maternal and Child Health**—Annual salary $14,400, plus travel expense. Minimum requirements: Graduation from a grade A medical school. Completion of at least two years of graduate training or experience in clinical pediatrics or obstetrics or both. Eligible for a medical license in West Virginia. Position is under the West Virginia Merit System. Write to N. H. Dyer, M.D., Director, West Virginia State Department of Health, Charleston 5, West Va.

Public Health Physician (District Health Officer)—State of Wisconsin. Two positions. One position includes 11 counties in the north central part of state, headquarters Rhinelander. Second position includes eight counties in area bordering Lake Michigan, north of Milwaukee, headquarters Fond du Lac. Act as medical administrator of district office; district epidemiologist; plan, organize, supervise work of district office personnel consisting of public health engineer, public health nurse, sanitarians, nutritionist, dental hygienist. M.P.H. degree plus three years' experience in public health administration; eligibility for a license in Wisconsin. Salary $11,640–$14,460 per year, plus travel allow-

ance. Civil service; vacation, sick leave, Social Security, retirement benefits. Write Carl N. Neupert, M.D., State Health Officer, 400 State Office Bldg., Madison 2, Wis.

Public Health Physician (Director, Local Health Service)—Wisconsin State Board of Health, Madison. Under the general direction of the state health officer and his assistant; to interpret the policies of the State Board of Health to the staff of the eight state district health offices; provide consultation, advice, and assistance to members of the district staff on administrative matters, community organization, and in the development and evaluation of full-time local health departments. M.P.H. degree, plus three years' experience in public health administration; eligibility for a license to practice medicine in Wisconsin. Salary $11,640–$14,460 per year, plus travel allowance. Civil service, vacation, sick leave, Social Security, retirement benefits. Write Carl N. Neupert, M.D., State Health Officer, 400 State Office Bldg., Madison 2, Wis.

Medical Officer—Training and experience in public health, willing to undertake training for assignment as malariologist in an international program. Knowledge of French or Spanish required. Attractive salary and allowances. For further details write to Personnel Officer, PASB/WHO, 1501 New Hampshire Ave., N.W., Washington 6, D. C.

Public Health Physician—To serve as medical assistant in the Grand Rapids Health Department. This is one of the better health departments in the country. The city is the cultural and shopping center for southwest Michigan. Salary range $11,674–$14,872, plus transportation, Social Security, retirement and longevity benefits, hospitalization insurance, and usual vacation and sick leave benefits. M.P.H. degree required. Apply to W. B. Prothro, M.D., Director, Health Department, Grand Rapids, Mich.

Associate Director (M.D.)—for leading biological manufacturer, blood bank, blood typing serums. Experienced laboratory background. Excellent salary, permanent, no traveling. Knickerbocker Biologicals, Inc., Times Square, New York 36, N. Y.

Wanted: **Physician-Virologist**—Licensed or eligible for license in New Jersey. To be in charge of program in virology and to assist director in other divisional programs. Must have broad background in microbiology. Salary $10,800–$13,800. Retirement, insurance benefits. Apply: Director, Division of Laboratories, New Jersey State Department of Health, State House, Trenton, N. J.

Public Health Nurse—Opening for **Public Health Nurse II.** B.S. degree, plus one year experience in established health department. Salary range $360 per month to $450 per month, plus liberal travel allowance. **Nurses** without experience and with degrees and public health training can qualify as Public Health Nurse II after one year of employment. Write to J. H. White, M.D., Director, Weld County Health Department, P. O. Box 521, Greeley, Colo.

Public Health Nursing Consultant—for a combined family and child care agency. To coordinate child health services and to serve as a nursing consultant to the casework staff. Requirements: Baccalaureate degree in public health nursing; postgraduate pediatric nursing experience desirable; two years of progressive nursing experience under qualified supervision in a general public health agency. Progressive personnel policies. Salary range $4,850–$6,150. Starting salary commensurate with the applicant's background. Write to the Rev. Paul J. Hickey, Director, Catholic Social Services of Wayne County, 9851 Hamilton Ave., Detroit 2, Mich.

Public Health Nurse—to work in Livingston County with headquarters in Howell, Mich. Generalized public health nursing program. Liberal personnel policies, Social Security. Beginning salary $4,500 per year with seven cents per mile travel. Write Dr. A. B. Mitchell, Director, Shiawassee-Livingston District Health Department, Court House Annex, Howell, Mich.

State Director of the Bureau of Public Health Nursing—Missouri Division of Health, Jefferson City. Responsibility for organizing, planning, and developing a state-wide program of public health nurses. Works with district and local health officers, nursing supervisors, and consultants to improve public health nursing in county health units and nursing services. Salary range $6,228–$8,328, travel allowance, state retirement, and Social Security. Merit system provisions for vacation and sick leave. Write to H. M. Hardwicke, M.D., Acting Director, Division of Health, State Office Bldg., Jefferson City, Mo.

Public Health Nurses—Ten-nurse agency, generalized service under supervision, salary $4,380–$5,100, 35-hour week, three weeks' vacation, retirement plan, and Social Security. Apply to Mount Vernon Health Department, Mount Vernon, N. Y. Telephone: MO 8-2200, extension 204.

Public Health Nurses—Beginning salary $4,440. **Graduate Nurses**—Beginning salary $4,020. Five-day work week from 8:30 a.m. to 4:30 p.m. Four weeks' vacation, 11 holidays, 12 days' sick leave annually, pension plan. Generalized public health nursing agency founded by Lillian D. Wald. Ongoing inservice education program. Four universities offer opportunities for study at all levels. Some scholarship assistance available. For information, write or call Personnel Office, Visiting Nurse Service of New York, 107 East 70th

St., New York 21, N. Y. Telephone Lehigh 5-1100.

Public Health Nursing Consultant (Assistant to Director of Public Health Nursing in State Health Department)—Give consultation to public health personnel in all phases of public health nursing, including in-service education; prepare manuals, guides, etc., for public health nurses; assist in administration of program. Bachelor's degree in public health nursing minimum preparation; master's degree desirable; four years' experience in public health nursing, including two in administration or supervision. Salary: Start at $5,750, maximum $6,900. Civil service, vacation, sick leave, Social Security, and retirement benefits. Write Henry A. Kjentvet, State Board of Health, State Office Bldg., Madison 2, Wis.

Sanitary Engineers and Sanitarians—for overseas employment. Salary range of $6,100–$12,400, plus liberal allowances. Vacancies in Near and Far East, Africa, and Latin America. Essential qualifications are formal training or experience in public health and willingness to accept assignment for minimum of two years. Contact Public Health Division, International Cooperation Administration, Washington 25, D. C.

Supervising Public Health Engineer—for program of progressive county health department. New modern health center in attractive community 10 miles by superhighway to downtown Kansas City, Mo. Degree in civil or sanitary engineering and experience sufficient to demonstrate ability to organize and direct required. Salary open, travel allowance. Apply to Director, Clay County Health Department, Liberty, Mo.

Field Engineer for Mosquito Abatement District—Experience in dragline and dozer work; eligible for Illinois registration. Liberal vacation and other benefits; salary dependent on qualifications and experience. Apply P. O. Box 30, Harvey, Ill.

Sanitarian—to accept responsible position with a growing health department. Excellent chance to gain supervisory and training experience. Minimum experience and training qualifications: Three years of professional experience in the field of public health sanitation and graduation from a four-year college or university with specialization in engineering, agriculture, chemistry, entomology, bacteriology, zoology, veterinary science, or a combination of these fields. (A year of graduate work in the field of public health or sanitary engineering may be substituted for two of the required three years of experience.) Salary range $400–$450 per month, plus liberal fringe benefits. Write Martin W. Ericson, Director of Sanitation, Room 103, City Hall, St. Joseph, Mo.

Public Health Statistician—Must have master's degree in public health statistics and two years' experience or an equivalent combination of training and experience. Salary range $460–$575. Starting salary dependent upon training and experience. Write to Personnel Officer, Florida State Board of Health, P. O. Box 210, Jacksonville, Fla.

Health Educators—for overseas employment. Salary range of $6,100–$10,500, plus liberal allowances. Vacancies in Near and Far East, Africa, and Latin America. Essential qualifications are formal training and experience in public health and willingness to accept assignment for minimum of two years. Contact Public Health Division, International Cooperation Administration, Washington 25, D. C.

Director of Business Management—Wisconsin State Board of Health, Madison. Under general direction of the state health officer and his assistant, direct the activities of the Divisions of Fiscal Services, Personnel, and Internal Services; conduct studies and make recommendations pertaining to business management activities designed to promote efficient operation; represent the board when requested at public hearings; and act as liaison officer to designated state departments. College graduation with a major in the field of law, business administration, hospital administration or public administration, including training in accounting principles and practices; six years of experience in public health administration or equivalent administrative experience in a closely related field, including three years of high-level administrative experience in business management. Salary $8,940–$10,860 per year. Civil service, vacation, sick leave, Social Security, retirement benefits. Write E. H. Jorris, M.D., Assistant State Health Officer, 400 State Office Bldg., Madison 2, Wis.

POSITIONS WANTED

On Box Numbers, Address APHA at 1790 Broadway, New York 19, N. Y.

Sanitary Chemist-Biologist-Bacteriologist—M.P.H. in sanitary chemistry and biology 1958. Eight years' experience in river, sewage and industrial waste analysis with state regulatory agency. Also teaching experience. Prefer southern half of the United States or Latin America. **Box L-62,** Employment Service, APHA.

Epidemiologist—Age 30, M.D., M.P.H., requirements for Dr.P.H. completed. Experience in obstetrics, student medicine, health

department, and chronic disease research. Desires teaching and/or research position in a medical school department of preventive medicine or in a health department associated with a medical school. Previous research in many fields with numerous publications. **Box PH-83,** Employment Service, APHA.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Suite 605, 900 North Michigan Avenue, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

WANTED: (a) Public health nurses and physicians, pathologists, biochemists, health educators, sanitarians; candidates well qualified in any phase of public health; overseas appointments. (b) Clinical psychologists, medical and psychiatric social workers, sanitarians; outside the United States. (c) Public health physician to direct over-all program of health services including those of teacher-nurse service, hearing and vision conservation program; would consult with school administrators, teachers, parents, nurses, representatives of official and nonofficial agencies in promotion of health services; minimum five years' experience required; city of several million; Midwest. (d) Regional health officer; outside United States; $1,195–$1,395. (e) Director, student health; 6,000 students; South. (f) School physician; near New York City; $10,000. (g) Administrator, chronic disease control program; M.P.H. (public health administration or M.A. public administration), experience as director, community health program desirable; outside United States; $8,000. (h) Health educator or administrator to supervise state program to aid communities in serving the aging; headquarters, university city, Midwest. (i) Two public health physicians; Iran; $20,000. (j) Sanitary engineer for environmental health and safety, student health department, state university; $6,000–$8,000. PUBLIC HEALTH NURSES for following: (k) Public health nursing instructor; master's required; college, South; maximum salary $10,000. (l) Assistant chief public health nurse, Alaska; $580–$680. (m) Instructor, maternal health, midwestern state university. (n) Public health nursing consultant and, also, public health nurses to direct county health departments; generalized program including school and home nursing care; Florida.

OPPORTUNITIES WANTED

WANTED—Opportunities for public health physicians, nurses, health educators, engineers, laboratory personnel. Candidates in all parts of the country available for administrative, academic and staff appointments. Negotiations strictly confidential.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

DOCTOR AND PATIENT IN SOVIET RUSSIA—By Mark G. Field. Cambridge, Mass.: Harvard University Press, 1957. 266 pp. Price, $5.00.

This book is a significant contribution to the current medical and public health literature on Russia. While the role of the doctor and of the patient, as the title would imply, are the primary focus of the discussion the author wisely relates these two groups to the social and governmental system in which they operate. An account of the development of medical resources and services from the prerevolutionary period to the end of 1956 is presented. Much of the information antedates 1950, since it is drawn from interviews with, and questionnaires completed by, emigrees from Russia whose total experience precedes the end of the Stalin era, much of it dating from the prewar era. However, statistical data through 1956 are presented on physicians and hospitals and the author's observations during a brief visit to Russia in the summer of 1956 add reality to the presentation which is reflected throughout the book.

In a scene so labile and so rapidly changing certain details of any discussion will be outdated before the book could be printed. Yet to this reviewer, who spent almost a month visiting widely separated areas of Russia during the summer of 1957, this book brings new meaning and new significance to many of the things heard and observed. The remarkable thing is that the author has been able to convey such a clear and penetrating picture despite his most brief, personal contact with the situation.

Now a few words about the book itself. It is divided into three parts, first, the setting; second, the physician; and third, the patient. The first part is particularly helpful in providing a picture of czarist medicine and its transition to the present system under the Ministry of Health. The place and role of the physician in the Soviet picture and how he reacts to it are then presented along with case illustrations. Finally, the patient's reaction and the various influences bearing upon the patient are presented.

There is a brief summary and conclusions followed by several helpful appendixes containing statistical data and chapter notes and references. The index is well arranged and seems adequate. The binding is good and the print clear and easily readable.

This is a book that public health workers in general and in particular the medical members will find interesting and most informative. It should be a must for all public health administrators and students of international health.

MALCOLM H. MERRILL

A HISTORY OF PUBLIC HEALTH—By George Rosen. New York, N. Y.: MD Publications (30 East 60th St.), 1958. 551 pp. Price $5.75.

At long last a comprehensive discussion of the historical development of the whole field of public health philosophy and practice has appeared. There were the choice few: Simon, Sand, Sigerist, Smillie. Now there is George Rosen's book. He has made a judicious selection of periods and skillfully outlined the social and political forces that shaped public health. The task he has laid out for himself is presented succinctly: "The aim of this book is to tell the story of community health action, from its beginnings in the earliest civilizations to the state of development achieved at present in the economically and technologically advanced countries of the world."

Essentially this is a social history, in

which public health can be seen to grow in a background of ideas and events that create and mold it. If anything, it may be that Dr. Rosen ties up too neat a package of cause and effect, at least for a reviewer who rather wistfully recalls public health heroes with whom he identified. However, he points out the essence of the significance of the reform movement: ". . . Chadwick's 'sanitary idea,' his deeprooted conviction that health was affected for better or worse by the state of the physical and social environment." That particular chapter, "Industrialism and the Sanitary Movement" is a brilliant piece of historical writing and probably the most informative and definitive chapter in the book. The detail and precision with which the historical factors are recounted and analyzed as to their impact and function is superb.

Side by side, a history of medicine, of technology, of mathematics, of philosophy move into place to demonstrate the influence on and motivation of public health, particularly the growing awareness of this new concept: prevention.

Other great developments are illuminated as well, humane treatment of the insane, epidemic control, international health organization. And the law of unequal development that pervades political history is seen to have its parallel in public health. The last half of the last chapter, "Bacteriological Era and Aftermath," with its concise picture of the evolution of medical care legislation in Europe and America and the controversies resulting is fascinating. The book ends up presenting key problems that face us today, public health developments to come: food, population and the poisoned air we breathe.

There is a wonderful bibliography, an excellent index, and other charming addenda: a "Who's Who" of memorable figures in the history of public health, a list of public health schools in the world, public health periodicals in all languages, and national and international public health societies.

This book is designed for use and should become the shabby dog-eared companion of every public health worker and student it deserves to be.

GEORGE A. SILVER

FIT TO TEACH—YEARBOOK ON TEACHER HEALTH—Washington, D. C.: American Association for Health, Education, and Physical Education and Recreation (1201 16th St., N.W.), 1957. 249 pp. Price, $3.50.

This 1957 Yearbook of the American Association for Health, Education, and Physical Education and Recreation is a revised and modern edition of the classic reference originally prepared by the Department of Classroom Teachers of the National Education Association two decades ago.

The present version should be of interest and enlightenment to at least three major groups: (1) teachers will find this publication a valuable source in helping them to recognize the health problems which they may encounter in their chosen profession; (2) the board of education which employs the teacher and the school administrator will note clearly stated their responsibility for promoting and maintaining an environment conducive to learning and teaching and for striving to improve the organizational and administrative aspects of the program; and finally, (3) the community members should single out this volume for reading to obtain a clear and concise definition of the role and obligation which they must assume in reference to the health of the teacher.

Emphasis is given throughout the publication that the sincere efforts and acceptance of responsibilities by all three—teacher, administration, and community—are essentially interdependent, just as the various aspects of the teacher's health—mental, physical, emotional, and social—cannot be separated or delegated to any one particular group.

Attesting to the fact that the book represents a cooperative venture is an impressive list of contributors and consultants in addition to the Yearbook Commission with Fred V. Hein, Ph.D., as editor, and the National Education Association Interprofessional Committee which participated extensively in its preparation. Thus, the contributions reflect many kinds of professional talent.

An outstanding feature of this Yearbook is a listing of 278 up-to-date references selected from a wide range of books, reports, and periodicals. The reader can be assured that whatever subject is not treated in detail in this publication has been elaborated upon in one or more of the specific readings on the comprehensive bibliography.

ELENA M. SLIEPCEVICH

MEDICAL RECORD OF BABY AND CHILD CARE—By Benjamin Spock. New York: Duell, Sloan and Pearce (270 Madison Ave.), 1958. Unpaged. Price, $1.25.

The idea behind this little booklet is a good one from three points of view: continuity of health supervision and medical care, offering the doctor a picture of the family's understanding on which to base his teaching, and a tool in health education to parents and children. One might question the cost of the booklet, which might be a deterring factor in many family budgets, when compared to "Baby and Child Care" in the 35-cent edition which put it within reach of everybody.

RUTH G. CUMINGS

PRINCIPLES OF EPIDEMIOLOGY—By Ian Taylor and John Knowelden. Boston, Mass.: Little, Brown (34 Beacon St.), 1957. 300 pp. Price, $9.00.

This little volume is welcome if for no other reason than that it is the first text on epidemiology in English since 1931. It has its own individual merit, particularly the sections on special surveys and the consideration of time and place relationships of community disease. The book is by two well known British epidemiologists. The senior author is in operational public health work; the junior author in academic education in public health.

The aim is a definition of epidemiologic principles with no attempt to describe the epidemiology of individual diseases. Examples are used liberally, however, in illustration of basic behavior of mass disease. The extent to which broad interest in epidemiologic practice has shifted from infectious to noninfectious disease is recognized in the preface, but has minor consideration in the text. The book is mainly concerned with the communicable diseases. The first fifth deals with statistical method and principle, material ordinarily considered in America as within the province of biostatistics. The statistical viewpoint runs through the text, in contrast to the biologic approach more usual in this country. Examples are almost wholly from British practice and reference is primarily to British work. American sources have good attention, but other countries almost none. Indeed, the international aspects of epidemiology, the comparison of disease behavior in tropics and arctic, and within varying social structures are largely missing.

Few divergencies are noted between American and British opinion as to what constitutes principle. Direct droplet infection, however, is classed as a type of air-borne infection, although subsequently stated not to be true air-borne infection but a variety of contact infection, the usual American interpretation. The matter is more than academic, for the interpretation determines whether control is to be directed along engineering or public health lines.

The book will prove useful to many public health workers, perhaps more to the health officer than any other. The statistical start and lack of clinical emphasis will discourage many medical

students. The graduate student will profit from the simple formulation of principles, although much of the material is below graduate levels of instruction; the concern is more with descriptive epidemiology than with the epidemiologic method as a means to research. The provincial limitation and the restriction to infective processess will disappoint some readers, but few will fail to profit. JOHN E. GORDON

PREVENTIVE MEDICINE FOR THE DOCTOR IN HIS COMMUNITY: AN EPIDEMIOLOGIC APPROACH—By Hugh Rodman Leavell and E. Gurney Clark (2nd ed.). New York: McGraw-Hill, Blakiston Division (330 West 42nd St.), 1958. 689 pp. Price, $10.00.

In the second edition of this text the same general approach has been maintained. Epidemiology and the several levels of prevention comprise the common underlying theme and, by their use, account for a greater consistency of text than might be expected from the two principal authors and 19 contributors.

The main changes in the second edition have been the use of a new title, the addition of a chapter on the natural history and prevention of oral disease, a more orderly sequence of chapters, slight expansion in length, greater use of illustrations, and the updating of the context and bibliographies of the respective chapters. There are very few changes among the authors or in the method of approach to their subjects. The senior authors are responsible for somewhat less than half of the text.

The character and quality of the book derive from the distinction of its several authors, its focus on epidemiology in a broad sense, and the organization of subject content within each chapter on a concept of five levels of prevention. The latter approach has as one effect the view of seeming to suggest that preventive medicine is co-extensive with the breadth of medicine and public health. The more broadly preventive medicine is conceived the more difficult to represent this in a text and to be selective among the substantive knowledge available. The authors deal with this problem through an emphasis on principles which requires some sacrifice of factual content to that of concepts. On the other hand, the approach does permit systematic coverage, a framework of understanding into which new factual knowledge can be added, and, of importance to practitioners, recognition of the existence of multiple causes of a disease and, potentially, the multiple opportunities for service in the name of prevention. DUNCAN W. CLARK

FINANCING HEALTH COSTS FOR THE AGED—Report on the New York State Conference convened by the governor at the State Capitol in Albany, December, 1956. Albany, N. Y.: Office of the Special Assistant, Problems of the Aging (Room 147, State Capitol), 1957. 242 pp. Price, $2.00.

This report describes the organization and meeting of a conference intended to clarify the pressing social and political enigma of the health cost problems of aging persons. It includes the testimonies of a number of individuals invited to document the problem and to suggest possible solutions.

The opinions of these experts with varying experience and attitudes toward the place of government in the health field are reported. Also, a list of suggestions for action by the conference is reproduced, and these run the gamut of voluntary and governmental actions to increase the flow of money for the purchase of health services for the aged.

The most frequently recurring suggestions from the variety of sources available to the conference staff are reported as follows:

1. Make it possible for the aged to carry voluntary health insurance by prorating increased payments back to the earlier and more productive years.
2. Promote industrial health plans that provide for continuing benefits after retirement.

3. Make state grants or subsidies to existing prepayment plans.
4. Include health benefits under OASI.

Incorporated in the volume are reports of the conference discussion groups and recommendations of a State Inter-Departmental Health Resources Board to the governor for action after assessing the recommendations of the conference.

The report presents an impressive challenge to the energy and ingenuity of voluntary agencies and government in meeting the health needs of the aged, a group generally with higher-than-average needs and lower-than-average financial resources. It demonstrates a conscientious effort to gather together all available data on the problem.

There was relatively small success reported on agreement for solutions. One gap in the information available to the conference was authoritative data on attitudes of the aged in measurement of their own problems and toward various solutions. GEORGE BUGBEE

TUBERCULOSIS: EVERY PHYSICIAN'S PROBLEM—By J. Arthur Myers. Springfield, Ill.: Thomas (301–327 East Lawrence Ave.), 1957. 290 pp. Price, $7.50.

Distilled from his vast experience and a lifetime career of intense activity in the field of tuberculosis, Dr. Myers has written a volume especially for practicing physicians, but suitable as a basic reference for all public health workers.

Beginning with a broadly stroked historical sketch, the text goes on to describe the common clinical forms of the disease with special attention to pathogenesis. Dr. Myers' well known advocacy of the widest possible use of the tuberculin test runs through the text like a bright thread through a complex pattern.

For readers in the field of public health the third section entitled "Control to Eradication" will be the most absorbing. Basic to Dr. Myers' design of total control is to tuberculin test the entire population, take annual x-rays of the positives, and annually to retest the negatives. A chapter entitled "Anachronisms" lists many false beliefs: that tuberculosis is ubiquitious, or inherited, that primary tuberculosis is more serious in adults than in children, etc. "Currently, a large volume of time and energy of tuberculosis workers, including professional groups, as well as huge sums of money, are being devoted to anachronisms." Various control approaches to the disease are then discussed: case finding, isolation, treatment, bovine tuberculosis control; there is persistent emphasis on the need of identifying all positive tuberculin reactors and their periodic examination for clinical tuberculosis. Vaccines are given short shrift.

Among successful control programs the work of Dr. Leo Schneider and of Dr. Tobias Gedde-Dahl is singled out; a good review is given of the work with medical students and nurses at the University of Minnesota.

Concluding with an essay on the role of the practicing physician, Dr. Myers calls for leaders in the far from won war against the red bacillus. "There is no short-cut to the eradication goal . . . we must pursue the tubercle bacillus to its last member." EDWARD KUPKA

PUBLIC HEALTH INSPECTOR'S HANDBOOK—By Henry H. Clay with the assistance of R. Williams (9th ed.). London, England: H. K. Lewis (P.O. Box 66, 136 Gower St.), 1957. 614 pp. Price, £2.0.0 net.

This edition by Henry H. Clay has had its title changed from "Sanitary" to "Public Health Inspector's Handbook." The change, which was promoted by the designations in the new laws and regulations of Great Britain, seems to have as much impact in the British Commonwealth as did the designation "Sanitarian" in the United States. The stated aim of the first edi-

tion, published in 1933, was to provide a handbook which could meet the needs of students preparing themselves for examination given by the Royal Sanitary Institute and the Sanitary Inspectors' Examination Joint Board. This new edition is also designed as a solid and comprehensive basis for such study and a vade-mecum for those concerned with public health administration.

The 32 chapters in this volume provide an encyclopedic review of British laws and regulations relating to aspects of environmental health. For example, a chapter is devoted to the laws and regulations embodied in the Public Health Act of 1936 concerned with canal boats. As implied by the title of the book the subject matter is treated in a manner conducive to stepwise following of procedures presumed acceptable in the field. The authors devote a considerable amount of attention to the various aspects of the hygiene of housing. The discussion of housing ranges from inspection of premises through a detailed discussion of the "Procedure Under the Housing Acts" beginning with the Housing Act of 1936 to the Slum Clearance (Compensation) Act of 1956 bringing up to date the legal and procedural aspects of housing in Great Britain. It is stated that the chapters on food, food premises, atmospheric pollution as well as housing have been rewritten.

As in the previous editions the handbook is amply illustrated and the illustrations are of very good quality.

Students of environmental health, both professional and lay, will find interest in this handbook. This is especially true if comparisons are to be made between American and British laws and regulations and modus operandi. It is noteworthy, for example, that an underrim jet drinking fountain is considered acceptable in Great Britain since "surplus water falls directly on to the outlet."

Those interested in the problems relating to the education and regulation requirements for sanitarians will find value in the chapters on appointment, designations, duties and training and qualifications of public health inspectors.

MAURICE A. SHAPIRO

THE PRACTICE OF INDUSTRIAL MEDICINE
—By T. A. Lloyd Davies (2nd ed.). Boston, Mass.: Little, Brown (34 Beacon St.), 1957. 282 pp. Price, $5.50.

A compact volume covering the field of industrial medicine for the uninitiate has an important place on the public health bookshelf. This small book, in spite of certain limitations, may well fill that place until a more perfect one is written. Although relying heavily on British experience, the problems presented and the practices necessitated by them have application in any country and at the same time provide a fairly complete survey of the subject.

The author, formerly an industrial physician for a British drug concern and now a professor of social medicine and public health in Singapore, defines industrial medicine as medical practice directed at problems arising out of the relationships between the worker and his work. Work includes any occupational activity not necessarily industrial in nature. The functions of the doctor in industry and his team in the maintenance of a healthful environment and the selection and supervision of the working force are a starting point for a discussion of hazards encountered in work and their control.

On the premise that all workers are exposed to them, the importance of general environmental conditions, which include social as well as physical factors, are stressed in contrast to specific hazards which affect a more limited group. However, chapters on "Industrial Disease" and the "Hazards of Coal Mining" provide an introduction to some specific exposures. A more judicious allotment of space and tighter organization could

possibly have been achieved to give added emphasis to a few of today's more pressing problems such as noise control, automation, and industrial pollution of air and water. The relationship of industry to community is accorded recognition in the chapter on "Social Functions of Industry" with a special section of its own. Other sections such as those on youth, the aged, disabled workers, rehabilitation and unemployment, although not so labeled, offer additional insights into this relationship.

Running like a thread throughout the book is the author's philosophy that the provision of healthful working conditions is management's obligation and that the ill-effects of working conditions are preventable. Recommendations for specific prevention are given in the appropriate sections. Of particular interest to public health workers is the importance accorded statutory regulations in preventive programs. That the regulations and the official agencies described are British may detract from the value of these discussions for American readers, but does not invalidate them. Aside from the fact that many parts of this country have comparable legislation, these descriptions of British practice provide a picture of the part that legal requirements and official agencies can play in the promotion of occupational health and, where applicable, may furnish a guide to practices that can be adopted voluntarily where no legal regulations exist. BEATRICE MINTZ

THE HUMAN SUM. HOW MANY SHOULD WE BE?—Edited by C. H. Rolph. New York: Macmillan (60 Fifth Ave.), 1957. 224 pp. Price, $3.75.

The Family Planning Association of England has done well to collect so distinguished an array of authors to contribute to its little volume. Julian Huxley starts with a splendid article on the world's population today, and the vice-chancellor of Liverpool University follows boldly with the story of family planning in England. The editor contributes a sprightly chapter on the law and there are eight others, not all of equal breadth and momentum, but with little repetition; the contributors have the experience to say something valid, and all with easy pens. The obstacle of sullen inertia of which Mr. Blishen, the schoolmaster, complains is not likely to loom as such in North America, but be superseded by more energetic and perhaps grievously mischievous problems.

The theme of the book is the sloth with which man's mind everywhere marches, and the problem is that of human existence in its better form only a few decades ahead. Hence, this is an excellent book for everyone and not least the physicians, clergy, social workers, gentlemen learned in the law, and legislators who sometimes mistake the small for the great, but have here a fundamental field for their best endeavors in the short time which our quickening pace will leave to their discretion.

HENRY WILKINSON

ZINSSER BACTERIOLOGY—By David T. Smith, Norman F. Conant, et al. (11th ed.). New York: Appleton-Century-Crofts (35 W. 32nd St.), 1957. 953 pp. Price, $12.00.

An interval of five years has elapsed since the previous edition of this popular text was published, during which, as the authors point out, almost twice as many significant publications have appeared in the field of microbiology as in any preceding five-year period. As a result every chapter has been either rewritten or completely revised. Much new material has been introduced, especially in the areas of bacterial physiology, immunology and virology, and a new chapter has been added on the blood groups and immunohematology.

Sections of the text are devoted to the general biology and physiology of bacteria, immunology, the pathogenic

bacteria, spirochetes, the pleuropneumonia group, Rickettsiae, small viruses, and medical mycology, with a final short chapter on technical methods. Emphasis is maintained, as in previous editions, on the application of basic bacteriology and immunology to the study of disease. Clinical aspects, including the effect of the newer drugs and antibiotics on each infection, are considered as well as the significance of each disease to the public health.

The format of the present edition is greatly improved over that of preceding editions. On a slightly larger page, the text is run in two columns with bold face type emphasizing important statements, and an occasional matter of minor importance is printed in small type. Illustrations are many and excellent, the bibliographies at the end of each chapter extensive, and the index, set in three columns, is sufficiently detailed to be useful.

This is one of the few texts which should be in everyday use in all public health and medical laboratories because of its comprehensive coverage of present-day bacteriologic knowledge.

EDMUND K. KLINE

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ABORTION IN THE UNITED STATES. Edited by Mary Steichen Calderone. New York: Hoeber, 1958. 224 pp. Price, $5.50.

ALCOHOLIC CLIENT, THE. Papers by Jean V. Sapir, et al. Reprinted from Social Casework. New York: Family Service Association of America, 1957. 31 pp. Price, 75 cents.

BONE AND RADIOSTRONTIUM. Arne Engstrom; Rolf Bjornerstedt; et al. New York: Wiley, 1958. 139 pp. Price, $8.75.

CLINICAL ENZYMOLOGY. Edited by Gustav J. Martin. Boston, Mass.: Little, Brown, 1958. 241 pp. Price, $6.00.

COMPARATIVE CLINICAL AND BIOLOGICAL EFFECTS OF ALKYLATING AGENTS. Annals of the New York Academy of Sciences, Vol. 68, Art. 3. New York: The Academy, 1958. pp. 657–1266.

COMMUNITY OF THE FUTURE AND THE FUTURE OF COMMUNITY. Arthur E. Morgan. Yellow Springs, Ohio: Community Service, Inc., 1957. 166 pp. Price, $3.00.

DIETARY PREVENTION AND TREATMENT OF HEART DISEASE. John W. Gofman, et al. New York: Putnam's, 1958. 256 pp. Price, $3.95.

FAMILY-CENTERED MATERNITY NURSING. Ernestine Wiedenbach. New York: Putnam's, 1958. 345 pp. Price, $5.50.

FINANCIAL ASPECTS OF HEALTH INSURANCE. Malcolm G. Taylor. Toronto, Canada: Canadian Tax Foundation, 1957. 102 pp. Price, $2.00.

FIRST TEN YEARS OF THE WORLD HEALTH ORGANIZATION, THE. New York: Columbia University Press, 1958. 538 pp. Price, $5.00.

HOME CONDITIONS. A Sociomedical Study of 1066 Hospitalized Patients with Skin and Venereal Diseases. Esbern Lomholt. Copenhagen, Denmark: Rosenkilde and Bagger, 1958. 100 pp. Price, Dan.kr. 14.00.

HOMEMAKER SERVICE. Papers by Philip M. Margolis, et al. Reprinted from Social Casework. New York: Family Service Association of America, 1957. 40 pp. Price, $.85.

HOW TO BE A NURSING AIDE IN A NURSING HOME. Dorothy Reese and Marguerite Burgess. Washington, D. C.: American Nursing Home Association, 1958. 195 pp. Price, $2.50.

INDUSTRIAL MEDICINE IN WESTERN PENNSYLVANIA 1850–1950. T. Lyle Hazlett and William W. Hummel. Pittsburgh, Pa.: University of Pittsburgh Press, 1958. 301 pp. Price, $6.00.

MARRIAGE COUNSELING: A CASEBOOK. Emily H. Mudd, et al. New York: Association Press, 1958. 488 pp. Price, $6.50.

MEAT HYGIENE. A. R. Miller (2nd ed.). Philadelphia, Pa.: Lea & Febiger, 1958. 557 pp. Price, $8.50.

MEDICAL AND BIOLOGICAL FILM LIBRARY CATALOGUE. Montreal, Canada: Information and Promotion Division, National Film Board of Canada, 1958. 190 pp.

MODERN PRESCRIPTION DRUGS. A report of their impact on the family budget. New York: Citizens' Committee for Children of New York City, 1958. 46 pp. Price, $1.00.

NEW FRONTIERS IN CHILD GUIDANCE. Edited by Aaron H. Esman. New York: International Universities Press, 1958. 218 pp. Price, $4.00.

PATIENTS ARE PEOPLE. Minna Field (2nd ed.). New York: Columbia University Press, 1958. 280 pp. Price, $4.50.

POPULATION: AN INTERNATIONAL DILEMMA. Summary of the Proceedings of the Conference Committee on Population Problems 1956–1957 by Frederick Osborn. New York: Population Council, 1958. 97 pp. Price, $2.00.

PRESERVATION OF YOUTH-ESSAYS ON HEALTH—Moses Ben Maimon (Maimonides). Translated from the Original Arabic (Fi Tadbir As—Sihha) with an introduction by Hirsch L. Gordon. New York: Philosophical Library, 1958. 92 pp. Price, $2.75.

PROBLEMS IN INTERCULTURAL HEALTH PROGRAMS. George M. Foster. New York: Social Science Research Council, 1958. 49 pp. Price, 50 cents.

REHABILITATION OF THE CARDIOVASCULAR PATIENT. Paul Dudley White, et al. New York: McGraw-Hill, 1958. 176 pp. Price, $7.00.

ROLE OF DIETARY FAT IN HUMAN HEALTH, THE. A Report of the Food and Nutrition Board—Publication 575. Washington, D. C.: National Academy of Sciences, National Research Council, 1958. 32 pp. Price, $1.00.

SKIN GRAFTING. James Barrett Brown and Frank McDowell (3rd ed.). Philadelphia, Pa.: Lippincott, 1958. 411 pp. Price, $15.00.

SOME HOSPITAL ADMINISTRATORS: NEOPHYTES IN AN EMERGING PROFESSION. Edith M. Lentz and Robert G. Michaels. Course in Hospital Administration. Minneapolis, Minn.: University of Minnesota, School of Public Health, 1957. 80 pp.

SOURCES OF INFORMATION AND UNUSUAL SERVICES 1958–1959. Edited by Raphael Alexander (5th ed.). New York: Informational Directory Company, 1958. 84 pp. Price, $2.50.

VOCABULARY OF DENTISTRY AND ORAL SCIENCE, THE. George B. Denton. Chicago, Ill.: American Dental Association, 1958. 207 pp. Price, $4.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

Raymond S. Patterson, Ph.D., F.A.P.H.A.

Solemn Reminders—During the 16-year period preceding mid-1956, the numbers of old people (65 and over) increased from nine to approximately 14.4 million. (By 1970 the figure will be 19.5.) The ratio of elders to the total population increased from 6.8 to 8.6 per cent during the same years. Vermont led all the states in 1956 with 11.3 per cent of the total, but in 10 other states the ratio was 10 per cent or more. The growing disparity in total numbers of older women as compared to older men continues, and will continue, to increase until, in 1970, there will be 2.8 million more women than men elders.

ANON. More Elders in the Population. Statist. Bull. Metrop. Life Insur. Co., 39, 3:4 (Mar.), 1958.

Department of Quiet Fun—Humor has little or no place in this straight-faced guide for the roving (public health) mind; however, your attention is called to a dissertation on crepitating breakfast foods—just another high spot in a great plateau of delightfully humorous "roving commentaries by peripatetic correspondents" that have long made the (Br.) Lancet a joy. Hunt out this item and you, too, may become a regular, and avid, reader of these commentaries.

ANON. In England Now. Lancet 7017:427 (Feb. 22), 1958.

Anent Swimming in Drinking Water—As health people, we may quite properly be dragged into discussions about recreational use of municipal water supplies. Adopted AWWA resolutions stating the association policy should therefore be known to us. In general, the association is opposed to legislation permitting such recreational use, but there are some exceptions (mostly in the use of distantly stored water already polluted).

ANON. Recreational Use of Domestic Water Supply Reservoirs. J. Am. Water Works A. 50, 5:579 (May), 1958.

Protection Indicators—Immunity persisted for three years after primary vaccination against poliomyelitis. The degree of immunity, and extent of loss of protection, seemed to duplicate closely the findings of others concerning the immunity in patients convalescent from the disease itself.

BROWN, G. C., et al. Duration of Seroimmunity After Poliomyelitis Vaccination. J.A.M.A. 166, 16:1960 (Apr. 19), 1958.

The San Mateo Plan—Concluding their report on this ambitious community project to prevent and treat disordered behavior in recidivist families, the authors warn that the San Mateo plan was designed to meet the existing and particular situation in that progressive county, and as a consequence that it does not presume to be adaptable in detail to any other community. However, a reading of the report will suggest that the principles they have put so well to work there will have wider applicability. Recommended reading.

BUELL, B., et al. Reorganizing to Prevent and Control Disordered Behavior. Ment. Hyg. 42, 2:155 (Apr.), 1958.

Health Educational Job—In pursuance to the British Ministry of Health's acceptance of the Medical Research Council's findings about the causal relationship between smoking and cancer, a clear statement of facts and factors involved is offered as a help in planning an educational attack as a part of the national campaign. This proposal of the medical director of the Central Council for Health Education may stimulate some second thinking by administrators and their health educators over here.

BURTON, J. Notes on Smoking and Lung Cancer. Health Ed. J. 16, 1:7 (Mar.), 1958.

What Patients Ask For—HIP experience was studied (longitudinally) by a research committee and here it begins its three-part report on economic and administrative problems related to providing medical care, as well as the kinds of services the enrollees utilize. Part 1 deals with enrollment and extent to which various kinds of people stay in the plan. Part 2 will tell about services sought by enrollees, and Part 3 will measure prevalence and incidence of various diagnoses.

DENSEN, P. M., et al. Longitudinal Analyses of Four Years of Experience of a Prepaid Comprehensive Medical Care Plan. Milbank Mem. Fund Quart. 37, 1:5 (Jan.), 1958.

Historical Gem—Those with even a trace of historical interest will be hugely entertained by the historical sketch of sanitary conditions prevailing in England in the 17th and 18th centuries, as seen through the eyes of

the courts leet—which were the sanitary watchdogs of those days.

Dopson, L. Courts Leet as Public Health Bodies. M. Officer 99, 17:235 (Apr. 25), 1958.

Harmless Fluoride—Necropsies were done on 904 persons who had lived in a Colorado community having a public water supply with a natural 2.5 ppm fluorine level. Pathologic findings revealed no significant anatomic difference that could be related to prolonged residence in this environment—a finding that will in wise lessen the violent opinions of the dedicated antifluoridationists!

Geever, E. F., et al. Pathologic Studies in Man After Prolonged Ingestion of Fluoride in Drinking Water. J. Am. Dent. A. 56, 4:499 (Apr.), 1958.

Hardy Perennials—It seems that the venereal diseases are not dying out in England either—though the authorities there tend to assume that they are. "The combination of thriving diseases and the disappearance of those whose special study they are has obvious dangers for the public health." This is the way the author sums up the problem, a summation that may well be shouted on this side of the water, too.

King, A. These Dying Diseases. Lancet 7002:651 (Mar. 29), 1958.

Market Poultry—Houston (Tex.) is thought to be the only city that has adopted a compulsory market poultry inspection system based upon PHS recommendations. (And this is a recently undertaken project.) The health officer concludes from his experience that psittacosis is primarily an industrial health problem and that the disease is not likely to be eradicated because of the variety of domestic and wild birds involved.

Laurentz, F. K. Public Health Significance of Psittacosis. Indust. Med. 27, 4:175 (Apr.), 1958.

For Old People—A plan for health protection clinics for the aging, strategically placed to draw upon the same population areas served by the existing child health centers is proposed. It is being considered in one locality but is awaiting the outcome of a committee study of aging need. (It is likely that the committee will have studied the paper annotated in the second item below.)

MacLeod, K. I. E. Well Oldster Health Conferences. Nursing Outlook 6, 4:206 (Apr.), 1958.

School (Mental) Health—Discussed here are the considerable virtues of a psychiatric service as an integral part of the school system—a plan in operation in Cleveland. In a child's ordinary development some obstacles to personality growth seem inevitable, and prompt professional help in solving the worst maladjustments is vital. (This is a Cleveland meeting paper and is followed by two more on related subjects.)

Markey, O. B. Intramural Psychiatry in Public Schools. J. School Health 28, 5:143 (May), 1958.

What Old People Want—These few excerpts should tell you whether you will want to look up this paper. "Geriatric clinics have long been advocated. . . ." "I have been such an advocate. . . ." "Few, however, have been established, and some of them have been abandoned." "Are geriatric clinics desired by the medical profession and by patients?" "I think one must conclude that they are not." A broader facility for all sorts of help for older people is reported upon.

Monroe, R. T. The Mechanisms of the Geriatric Clinic and its Place in the Community. New England J. Med. 258, 18:882 (May 1), 1958.

First-Aider, Note Well—It is suggested here that back-pressure, arm-lift artificial respiration is ineffective. Mouth-to-mouth or mouth-to-airway methods should be generally adopted. A

new device to make this a more acceptable procedure (for the first-aider) is proposed and described. The ambulance personnel in Baltimore and the doctors in the city hospitals are using this device now.

SAFAR, P. A Comparison of the Mouth-to-Mouth and Mouth-to-Airway Methods of Artificial Respiration with the Chest-Pressure Arm Lift Method. New England J. Med. 258, 14: 672 (Apr. 3), 1958.

"Was This Really Necessary?"—For ten years a revealing sickness survey was carried on (in Great Britain) until the question above was asked by the higher authorities. The answer that came back and the agreement of the survey's administrators with the decision from on high are both of moment to us—who usually stop our programs only when the money runs out. The survey, by good fortune, covers the time before, and after, the inauguration of the National Health Service. The rates of medical consultation are analyzed by regions and the differences are illuminating.

TAYLOR, S. The Survey of Sickness 1943–1952. Lancet 7019:521 (Mar. 8), 1958.

Human Relations—If Part 2 lives up to the promise of Part 1, this paper on interviewing (for nurses) will have meaning for all of us who deal intimately with human beings in the course of our daily jobs. In passing, the author comments, "a little anthropology is a dangerous thing." Then she concludes, "While interviewing requires certain identifiable skills and techniques, there is no magic in it."

WOLFF, I. S. Interviewing in Public Health Nursing. Nursing Outlook 6, 5:267 (May), 1958.

If additional information is desired regarding the articles listed in this bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Health Ed. J. (Health Education Journal), Tavistock House, Tavistock Sq., London, W.C.1, England.
Indust. Med. (Industrial Medicine and Surgery) 605 N. Michigan Avenue, Chicago, Ill.
J. Am. Dent. A. (Journal of the American Dental Association), 222 N. Superior St., Chicago, Ill.
J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago, Ill.
J. Am. Water Works A. (Journal of the American Water Works Association), 2 Park Ave., New York 16, N. Y.
J. School Health (The Journal of School Health), American School Health Association, 3335 Main St., Buffalo 14, N. Y.
Lancet, 7 Adam St., Adelphi, London, W.C.2, England.
M. Officer (Medical Officer), Chronicle House, 72–78 Fleet St., London, E.C.4, England.
Ment. Hyg. (Mental Hygiene), National Association for Mental Health, 372–374 Broadway, Albany 7, N. Y.
Milbank Mem. Fund Quart. (Milbank Memorial Fund Quarterly), 40 Wall St., New York, N. Y.
New England J. Med. (New England Journal of Medicine), Massachusetts Medical Society, 8 The Fenway, Boston 15, Mass.
Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.
Statist. Bull. Metrop. Life Insur. Co. (Statistical Bulletin Metropolitan Life Insurance Company), One Madison Avenue, New York 10, N. Y.

NEWS FROM THE FIELD

WHO News

11th World Health Assembly in the United States

The 11th World Health Assembly opened in Minneapolis on May 28, the first meeting of WHO's governing body in the United States. Dr. Sabih Hassan Al-Wahbi presided over the opening sessions, at the second of which Surgeon General Leroy E. Burney succeeded Dr. Al-Wahbi as president. Other officers elected included three vice-presidents, Dr. J. Anouti, director general of Lebanon's Ministry of Health; Dr. A. Sauter, director of public health of Switzerland; and Dr. Tran Vy, health minister of Viet Nam. Also elected were Professor N. N. Pesonen, director general of Finland's State Medical Board as chairman of the Committee on Program and Budget, and S. Khanachet, member of the Saudi Arabian Legation in Bonn as chairman of the Committee on Administration, Finance, and Legal Matters. Delegates of Chile, Ecuador, France, Ghana, India, Japan, Mexico, the United Kingdom, and the USSR were elected to the General Committee which includes also the president, the vice-presidents, and the chairmen of the two main committees.

The Assembly was attended by about 350 delegates representing nearly all of the 88 member states of WHO. In his address of welcome President Al-Wahbi especially welcomed delegations from new members, the Federation of Malaya and the United Arab Republic, and from Czechoslovakia, which resumed active status as a member for the first time since 1950.

Leon Bernard Prize to Dr. Parran

On May 30, the World Health Assembly, meeting in Minneapolis, awarded its Leon Bernard Foundation prize to Thomas Parran, M.D., former Surgeon General of the Public Health Service. In presenting the award, newly elected President Leroy E. Burney, M.D., reviewed Dr. Parran's outstanding contributions to public health services in the United States, particularly in expanding venereal disease, tuberculosis, and cancer control programs, in providing assistance to states for public health programs, and in establishing large-scale grants for hospital construction. He cited also Dr. Parran's preparatory work in establishing WHO as well as his role in the first World Health Assembly.

In his acceptance address, Dr. Parran surveyed the tasks ahead for WHO. "Each new break-through of a discovery in the health sciences and each shift in living patterns will produce additional tasks for WHO and for national health services." Dr. Parran proposed that member states, in addition to their regular contributions to WHO, use 2 per cent of their annual appropriations for military purposes as extra contribution to the Expanded Program of Technical Assistance, in which WHO should have a substantial share. "With such funds, malaria eradication would be speeded up; smallpox, tuberculosis, syphilis and yaws would be next to go. . . . Then WHO could turn its energies more fully to improved nutrition, to promoting physical and mental vigor, to expanding scientific health knowledge, and to the most difficult task of all, the improved harmony of human relations."

The Bernard Prize was originally established in honor of Professor Bernard of France, who was a member of the Health Committee of the League of Nations, in recognition of outstanding achievements in the field of social medicine. Earlier recipients were Professor Rene Sand of Belgium, Professor C.-E. A. Winslow of the United States, Dr. Johannes Frandsen of Denmark, Professor Jacques Parisot of France,

Professor Andrija Stampar of Yugoslavia, and Professor Marcin Kacprzak of Poland.

Commemorating the 10th Anniversary

The 10th Anniversary of WHO was celebrated in Minneapolis on May 26 and 27, preceding the 11th World Health Assembly. Presiding at the opening evening session, attended by some 3,000 persons and addressed by delegates from 43 countries, was Dr. Sabih Hassan Al-Wahbi, president of WHO and former Iranian Minister of Health. Mayor P. K. Peterson of Minneapolis greeted the delegates. Governor Orville L. Freeman took note of the coincidence of WHO's 10th anniversary and Minnesota's 100th.

The message of secretary general of the United Nations, Dag Hammarskjold, brought by Philippe de Seynes, undersecretary for economic and social affairs, stressed progress made in nutrition jointly by WHO and FAO, in maternal and child health by UNICEF and WHO, and in fundamental education by UNESCO and WHO. The president of the assembly reviewed the many contributions of the United States to world health, such as the war against yellow fever, the more recent pioneer work in polio immunization, and the training of public health personnel. He paid tribute to the U. S. Public Health Service for the good will with which it has made its staff available to WHO.

At later sessions Brock Chisholm, M.D., first director general of WHO, and two former presidents of the World Health Assembly, Dr. Karl Evang of Norway and Dr. Joseph Togba of Liberia, were among the speakers. President Eisenhower was represented by Dr. Milton Eisenhower, president of Johns Hopkins University, who announced that the United States government was prepared to contribute in the neighborhood of $300,000 to a world attack on major illnesses such as cancer and heart disease. At these sessions also the ministers of health of many of the member nations of WHO reviewed health progress in their own countries. In Korea, for example, smallpox cases dropped from 43,000 cases in 1951 to seven in 1957; in South Africa 8 per cent of its national budget is now devoted to preventive and curative medicine; in Iraq WHO has served as "an impulse and catalyst" in many such projects as bejel and venereal disease control, tuberculosis control, and malaria eradication. At this session, Dr. Candau, director general, reviewed the 10 years of WHO. The growth of its budget from five to 14 million dollars he cited "as a tangible proof of the growing confidence that all nations have in the organization." He also reported progress in solving the shortage of trained public health personnel, which he called perhaps the greatest obstacle to raising health standards throughout the world. Sir Arcot Mudaliar, vice-chancellor of Madras University, India, and one time chairman of the WHO Executive Board, prophesied that the idea of world citizenship might spring from WHO which has had "more contact with common men throughout the world today" than any other organization.

WHO Story to Selected Reporters

Preceding the 10th World Health Assembly in Minneapolis beginning May 28, M. G. Candau, M.D., general director of WHO, passed through New York City. At the invitation of the Overseas Press Club he addressed its monthly luncheon meeting on May 15. In his talk he outlined some of the basic facts about WHO and its operations. He stressed particularly its world-wide and democratic organization—88 member nations each with a single vote. By comparing WHO's most recent budget of thirteen and a half million dollars with nearly twice that of New York City's health budget, Dr. Candau was able to dramatize WHO's function as

"stimulating vast public health undertakings" rather than financing them. WHO should be thought of as a "catalytic agent," helping "to strengthen the national health services so that they can stand on their own feet."

Dr. Candau indicated that WHO's greatest single accomplishment in the first ten years has been in getting governments and health administrations to work together in common health problems whose solutions demand close cooperation. There has also come about a vitally important change in public health philosophy and outlook. Only a few years ago eradication of certain communicable diseases was a Utopian dream; today it is a guiding principle accompanied by practical steps toward that goal.

Preceding the World Health Assembly in Minneapolis, WHO held a two-day meeting, May 26 and 27, celebrating its tenth anniversary.

Findings of National Health Survey

A series of reports on the findings of the National Health Survey are now in distribution by the Public Health Service. The first two appeared in April and May. They deal with the volume respectively of physician visits and dental care during the third quarter of 1957.

On the basis of a sampling—of approximately 9,000 households comprising 28,500 persons—it is estimated that people in the United States visit their physicians about five times a year, varying from less than three per year for rural farm people, about four and a half for nonfarm rural, and slightly over five for urban. About two-thirds of visits are for diagnosis and treatment services and only about one-third for preventive care and service.

On the basis of the same sampling, it is estimated that only about 36 per cent of the population visited a dentist within the year, and that 42 per cent had not visited one for three years or more. About 41 per cent of visits involved fillings, about 20 per cent, extractions. Persons in urban areas visit a dentist more frequently than those in rural areas, and women more frequently than men. There is further indication that 13 per cent of the population have lost all their teeth.

"Preliminary Report on Volume of Physician Visits, United States, July–September, 1957," PHS Publication No. 584–B1. "Preliminary Report on Volume of Dental Care, United States, July–September, 1957," PHS Publication No. 584–B2. Gov. Ptg. Office, Washington, D. C.; 25 cents each.

Border Public Health Society Meets

More than 300 delegates attended the 16th annual meeting of the United States—Mexico Border Public Health Association in El Paso, Tex., and Juarez, Mexico, April 7–11. Each of the four American and six Mexican border states were represented by members of their state and local health services.

An entire day was devoted to a seminar on diarrheal diseases, with an opening statement by Manuel E. Pesqueira, M.D., undersecretary of health and welfare, Mexico. This was followed by group discussions and the preparation of a joint report that will be distributed to the members of the Association.

In one plenary session, David E. Price, chief, Bureau of State Services, Public Health Service, pointed out the advantages for programs of health protection and promotion of cooperation among various health agencies, both national and international. At another plenary session, Malcolm H. Merrill, M.D., California state health officer and retiring president of the Association gave a talk on his recent visit as member of a public health mission to Russia which he illustrated with colored slides.

The Sanitation, Nursing, Veterinary

Public Health, Maternal and Child Health, Venereal Disease, and Tuberculosis Sections each held two or more meetings. Simultaneous interpretation services were provided throughout the sessions with the cooperation of the Pan American Sanitary Bureau.

Newly elected officers are:

President—Ing. Alberto Ortiz Irigoyen, secretary, Ministry of Hydraulic Resources, Mexico

President-Elect—Henry A. Holle, M.D., Texas commissioner of health

Vice-Presidents—Dr. Eduardo Takasita Elizondo, chief, Department of Health and Welfare of the state of Tamaulipas; Vincent V. Larson, Arizona State Department of Health

Secretary—Dr. Jorge Roman, chief, PASB/WHO Field Office, El Paso (reelected)

The 1959 meeting will be held March 30–April 3, in Brownsville, Tex., and Matamoros, Tamaulipas.

1960 Conference, Children, Youth

In preparation for the 1960 White House Conference on Children and Youth, Marion B. Folsom, secretary of health, education, and welfare, has invited each of the state governors to appoint state committees to participate in planning for the conference. These committees would prepare for a national and state-by-state stocktaking on problems of children and youth and would serve as liaison between the states and a national over-all advisory committee still to be appointed.

Health Careers Commission

The Health Careers Commission, recently established by the National Health Council, celebrated National Medical Education Week with its first public meeting. At a luncheon in New York City, Howard A. Rusk, M.D., chairman, Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, speaking on "Health Manpower, an Essential Investment," indicated a shortage of trained personnel in practically all of the more than 150 health occupations. The meeting was chaired by Commission Chairman Leonard A. Scheele, M.D., former Surgeon General of the Public Health Service.

This meeting was also the occasion for presentation of a citation to Basil O'Connor, president of the National Foundation for Infantile Paralysis. In presenting the award for his organization, Joseph P. Anderson, executive director of the National Association of Social Workers, cited the National Foundation's "pioneering leadership in the field of professional education and for its aid in the creation of a trained corps of medical social workers."

Columbia to Study Health Plans

Because the Associated Hospital Service of New York has petitioned the state's legislature for permission to increase by 40 per cent the premiums paid by members, a study is under way of the 19 Blue Cross, Blue Shield and dental expense indemnity plans in the state. The study will be made by the Columbia University School of Public Health and Administrative Medicine under the direction of its executive officer, Ray E. Trussell, M.D. Out of the study it is hoped to establish guidelines for fair rates.

The services of the Columbia faculty are being provided without charge but the cost services of other experts and the staff of the study is being met by the 19 nonprofit plans.

Health Programs in Small Plants

"Small Plant Health and Medical Programs," published in 1952, by the Public Health Service, has been reissued. The publication contains useful information for employers who wish to estab-

lish inplant health programs and for labor, professional, and other groups with a special interest in employee health.

PHS Publication No. 215, Occupational Health Program, Public Health Service, Washington 25, D. C.

Air Pollution Control in 4th Year

Back in 1954, Governor Knight of California asked the State Health Department to investigate air pollution in the state and its health effects. Within six months an initial detailed report, "Clean Air for California," including an impressive bibliography, was made to the Governor and widely published. Shortly thereafter in 1955 an Air Sanitation Bureau was established in the State Health Department. Since then two further printed reports, one for 1955, one for 1956 have appeared.

The 1956 report found two facts standing out from all the background of new information: the problem is spreading and progress is being made in fact-finding and control.

By September, 1957, the Air Sanitation Bureau issued the Clean Air Quarterly as "a regular system of communications (for information that is of state-wide interest) between the air pollution control districts, the universities and the research agencies, and the unofficial organizations concerned with air pollution." This is a mimeographed document of some 18 to 24 pages.

The third issue of this quarterly, the first of 1958, is the annual report issue. It reports some smog improvement in the areas chiefly affected but the areas affected appear to have widened. A plant damage survey was established in the state by the state's Agricultural Extension Service. A nine-member advisory committee to the air sanitation program was appointed "to provide the department with an independent and outside viewpoint on air pollution including concepts and contents of its program, its role in the state-wide air pollution problems, and important developments in the field." Also to be noted is the fact that this fourth annual report, as a part of the Quarterly, is a far less costly production than the earlier ones.

John A. Maga is chief of the Bureau of Air Sanitation. Serving with him on the editorial board of the Quarterly are the chief of the Air Sanitation Laboratory, Harold L. Helwig; chief of the Bureau of Chronic Diseases, Lester Breslow, M.D.; and a health education consultant of the department, Yolande Lyon.

Medicine and City Planning

Various aspects of the urban environment have long concerned public health. Nowhere in the pertinent literature, however, have the relations of health and urban environment been integrated and presented in a truly comprehensive manner. This task has now been accomplished in a massive two-volume work, "Medizin and Städtebau," recently published in Germany. There is no doubt that this encyclopedic work, edited by Dr. Paul Vogler and Professor Erich Kühn, is a landmark in the study of urban living. The two volumes are published by Urban and Schwarzenberg, Munich, Germany. An extended review of the work will appear in an early issue of the Journal.

Nutrition Training Fellowship

The National Vitamin Foundation invites individuals with doctorate degrees in medicine or one of the biological sciences, who wish to continue their training in the science of nutrition, to become candidates for a Foundation-Russell M. Wilder Fellowship. This postdoctorate fellowship was created by the Foundation to honor Dr. Russell M. Wilder of the Emeritus Staff of the Mayo Clinic

for his more than forty years of devoted service and significant contributions to medicine and public health and particularly for his leadership in advancing our knowledge of diseases of metabolism and nutrition.

The three-year fellowship which becomes effective July or September, 1959, pays the recipient $4,500 the first year, $5,000 the second, and $5,500 the third year. The candidate selects the institution in which he plans to work. His application must include statements from the executive officer and the head of the department under whom the candidate will work, indicating that he will be permitted and encouraged to carry on his work. He must also outline a program of study approved by his preceptor and give reasonable assurance that he will complete his fellowship and continue to work in the field of metabolism and nutrition following the fellowship period.

A Scientific Advisory Committee chooses the successful candidate. Completed application forms must reach the Foundation not later than September 1, 1958, and applicants are notified not later than January 1, 1959. Application forms and further information from the National Vitamin Foundation, 149 East 78th St., New York 21, N. Y.

NTA Wins WBC Paul Revere Award

The 1957 Paul Revere Award of the Westinghouse Broadcasting Company has been made to the National Tuberculosis Association and its 2,750 local affiliates. The award was made in recognition of a consistent, effective, and imaginative use of radio and television with specific local emphasis to alert the American public to the ever-present menace of tuberculosis. The presentation was the concluding feature of the WBC-sponsored Baltimore Conference on Local Public Service Programming, held March 5–8 at Johns Hopkins University. The NTA was especially commended for the artistic and effective showmanship embodied in its educational film, "Are You Positive?" and for the competence and diligence in its promotion of the film for wide showing in local areas.

A Paul Revere Awards Citation was presented to the American Foundation for the Blind for its effective use of local radio and television to "help those handicapped by blindness to achieve the fullest possible development and utilization of their capacities and their maximum integration into the social, cultural, and economic life of the community and to create a more realistic attitude toward blindness among the sighted."

PERSONALS

C. Earl Albrecht, M.D.,* former acting director, Ohio Department of Mental Hygiene and Correction, has been named deputy secretary of health of Pennsylvania, succeeding Charles L. Wilbar, Jr., M.D.,* named secretary.

Thomas H. Alphin, M.D., former director, Washington office, AMA, has resigned to become associate medical director, Equitable Life Assurance Society of the U. S., New York City.

Ernest C. Anderson,* former assistant chief, Radiological Health Program, Division of Sanitary Engineering Services, in now chief, Special Projects Branch, Division of Radiological Health, Public Health Service.

Wilfred Bloomberg, M.D., former associate director for mental health, Southern Regional Education Board, is now commissioner of mental health for Connecticut.

Frances Calvert, a volunteer worker for many years, has been appointed executive director, Travis County (Tex.) Tuberculosis Association.

Charles M. Carpenter, M.D.,* professor of infectious diseases and chairman of the department, University of California School of Medicine, Los Angeles, has been awarded a six-week fellowship from the Del Amo Foundation for studying brucellosis and leprosy at the Universities of Madrid, Barcelona,

* Fellow.

and Cordoba, in Spain, where he will also give lectures on brucellosis.

DONALD R. CHADWICK, M.D., former liaison officer for radiation, Office of the Surgeon General, is now chief, Program Operations Branch, Radiological Health Program, Public Health Service.

WILLIAM S. CLARK, M.D., former project director for teaching total rehabilitation, Western Reserve University Medical School, is now director of patient care, National Foundation for Infantile Paralysis, to supervise a nation-wide rehabilitation program for those suffering the aftereffects of polio.

SIR ALLEN DALEY,* Honorary Fellow, president, United Kingdom Committee for WHO, and former medical officer of health of the London County Council, has received the honorary degree LL.D. from Liverpool University.

ANTOINETTE DIMLER, former executive secretary, Saratoga County (N.Y.) Tuberculosis and Health Association, is now executive secretary, Norwalk (Conn.) Heart Association, and part-time field representative, Connecticut Heart Association.

LYMAN C. DURYEA, M.D., M.P.H.,* has succeeded O. E. PUCKETT, M.D., retired, as health officer, District 6, New Mexico, including Chavez, Eddy, and Lea Counties with headquarters in Carlsbad.

STUART L. EDMONDS, field service consultant, Michigan Association for Better Hearing, has been named 1958 winner of the American Hearing Society's Kenfield Memorial Scholarship, an award made annually to a prospective teacher of lip-reading. Mr. Edmonds will study "Methodologies for Teaching Speech Reading" at Northwestern University.

VICTOR M. EHLERS,* director, Division of Sanitary Engineering, Texas State Health Department, and LOUIS F. WARRICK,* chief, Technical Services, Water Supply and Water Pollution Control Branch, Public Health Service, have been elected honorary members of the American Water Works Association.

JULIA L. FREITAG, M.D., senior public health physician, Bureau of Epidemiology and Communicable Disease Control, New York State Health Department, has been promoted to associate public health physician (epidemiology).

LEON J. GINTZIG, PH.D.,† formerly with the Veterans Administration Hospitals in several states, is now assistant professor, graduate program in hospital administration, State University of Iowa.

CARLOS LUIS GONZALEZ, M.D., DR.P.H.,* who recently resigned as assistant director, Pan American Sanitary Bureau, to take elective office as senator, State of Tachira, Venezuela, was asked to become minister of health by the same revolutionary government that dissolved the congress to which he was elected.

CHARLES R. GOULET,† former assistant professor of hospital and medical administration, University of Pittsburgh Graduate School of Public Health, has been appointed associate director, Johns Hopkins Hospital, Baltimore, Md., succeeding LAD F. GRAPSKI,† resigned to become director, University of Maryland Hospital.

HARRY E. HANDLEY, M.D.,* former public health associate, Commonwealth Fund, is now deputy director, West Virginia Department of Health.

ARCHIE D. HESS, PH.D.,* director, Logan, Utah Field Station Section, Public Health Service Communicable Disease Center, has been named president-elect, American Mosquito Control Association, with responsibility for planning the 1959 annual meeting program to be held in Salt Lake City, April 13–15.

IRIS JETTE, formerly on the Greater Anchorage Health District staff, Alaska Department of Health, has resigned to join the Indian Health Service, Bureau of Indian Affairs, at Keams Canyon, Ariz.

MARIE F. KIRWAN,* executive secretary, Yonkers Tuberculosis and Health Association, after 20 years of service has retired and has been succeeded by LOUISE G. CAMPBELL,* a one-time associate of the Health Education Division of the National Tuberculosis Association.

WILLIAM KRAUS, M.D.,† former assistant director, Division of Tuberculosis Control, and director of its hospitals, is now director, Division of Chronic Diseases, Pennsylvania State Department of Health.

J. RAYMOND LANGDON, M.D., former psychiatrist, Morningside Hospital, Portland, Ore., is director, Mental Hygiene Unit, Mental Health Section, Alaska Department of Health.

NICHOLAS J. LAVNIKEVICH,† former executive secretary, Northwest Chapter, Connecticut Heart Association, has been appointed program director, Connecticut Heart Association, Hartford. He has been succeeded in Torrington by RUTH DEERING, R.N., who recently completed a traineeship program through the American Heart Association.

JAMES LIEBERMAN, D.V.M.,* assistant to the chief, Training Branch, Public Health Service Communicable Disease Center, Atlanta, Ga., in mid-April was detailed to the Pan American Sanitary Bureau for several weeks

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* Fellow.
† Member.

to serve as consultant in the development of a seminar on teaching public health in schools of veterinary medicine, planned in conjunction with the 1959 annual meeting of the American Veterinary Medical Association in Kansas City.

WILLIAM MALAMUD, M.D., chairman, Division of Psychiatry, Boston University School of Medicine, psychiatrist-in-chief, Massachusetts Memorial Hospitals, and president-elect, American Psychiatric Association, will become director of research, National Association for Mental Health on September 1.

HILDEGARDE MCCOY is the new bacteriologist-serologist, Division of Laboratories, Wyoming State Health Department.

SAM MORCH,† public health educator, Williamsburg-Greenpoint District Health Center, New York City Department of Health, is on a two-year leave assigned to the International Cooperation Administration as village-agricultural and industrial development training adviser, Dacca, East Pakistan.

ELIZABETH MUMM,† former health educator, Quadri-County Health Department, at Golconda, Ill., is now with the Health Education Division, Alaska Department of Health.

MURRAY R. NATHAN,† former director, Office of Planning and Procedures, New York State Department of Health, has become administrative director of the State Department of Law.

AGNES NOHRNBERG, former membership consultant, National League for Nursing, has resigned to become public relations and membership consultant, California State Nurses Association.

JESS OSTERWEIL, former research consultant, National Travelers Aid Association, has been appointed an associate, Social Research Division, National Tuberculosis Association.

GEORGE O. PIERCE, P.E.,* former chief, Environmental Sanitation Branch, Pan American Sanitary Bureau, has been appointed assistant chief, Bureau of Food and Public Health Engineering, District of Columbia Department of Health, Washington, D. C.

JOSEF PREIZLER, M.D., M.P.H.,† former assistant health officer, Long Beach, California, is now epidemiologist, Wisconsin State Board of Health.

CALVIN A. PYLE, M.D., former tuberculosis specialist, Whipple Veterans Administration Center, is now director, Leavenworth City-County (Kans.) Health Department, succeeding H. S. BLESSE, M.D.

JEAN PIERRE ROSSELET, PH.D., has been appointed senior biochemist, Biochemistry Department, Schering Corporation, pharmaceutical manufacturers.

BERNARD SAPER, PH.D., former director, Counseling Center, and assistant professor of psychology, Northwestern University, has been appointed director of psychological services, New York State Department of Mental Hygiene, succeeding ELAINE F. KINDER, PH.D., who will devote full time to a follow-up study of brain-operated schizophrenic patients at Rockland State Hospital.

EDWARD J. SCHOWALTER, M.D., has been appointed to the newly created post of medical director, Western Electric Company.

LEA SCHWARCZ, M.S.P.H.,† formerly on the New London (Conn.) Tuberculosis Association staff, is now eye health consultant, Commission for the Blind, New York State Department of Social Welfare, Albany.

LESLIE SILVERMAN, S.D., former associate professor of industrial hygiene engineering, has become professor of engineering in environmental hygiene, Harvard School of Public Health.

WILMA L. SMYTH, former child welfare supervisor, Montana State Department of Public Welfare, and recently serving an internship in medical-social work, Washington University, St. Louis, has been appointed medical-social work consultant, Division of Child Health Services, Montana State Board of Health.

GEORGE W. SPREHN, M.D., has been appointed director, Community Psychiatric Clinic, Montgomery County, Md., succeeding HENRY A. SEGAL, M.D., resigned to enter private practice.

WILLIAM H. STEWART, M.D.,* former assistant to the Surgeon General, has been appointed assistant program operations officer, Public Health Service.

JAMES G. TERRILL, JR.,* former chief, Radiological Health Program, Division of Sanitary Engineering Services, has been made assistant chief, Division of Radiological Health, Public Health Service.

MAJOR STEFANO VIVONA, MC, M.D., M.P.H.,* U. S. Army, former assistant chief, Department of Biostatistics, Walter Reed Army Institute of Research, is now chief, Preventive Medicine Research Branch, Research and Development Division, Office of the Surgeon General, Department of the Army.

ALICE M. WAGNER,† former assistant executive secretary, Montgomery County (Md.) Tuberculosis and Health Association, has been

* Fellow.
† Member.

appointed an associate, Program Development Division, National Tuberculosis Association, to serve as general field consultant.

FRANCIS J. WEBER, M.D., DR.P.H.,* former medical director, Denver Regional Office, Public Health Service, has been named chief of the newly established Division of Radiological Health, Public Health Service.

ELMER P. WHEELER,† assistant director of, Monsanto Chemical Company, St. Louis, Mo., has been named president-elect, American Industrial Hygiene Association.

BRIGADIER GENERAL M. S. WHITE (MC), USAF, director of medical staffing and education for the Surgeon General, is the new president of the Aero Medical Association.

ARTHUR H. WOLFF, D.V.M., former assistant chief, Radiological Health Training Center, Cincinnati, is chief, Training Branch, Radiological Health Program, Public Health Service.

DEATHS

LEWIS O. BERNHAGEN,† director of sanitation, City Health Department, and chemist-bacteriologist, Beaumont City Health Department, Beaumont, Tex. (Food and Nutrition Section).

JOHN K. HOSKINS, former Assistant Surgeon General and Chief of the Sanitary Engineering Division, Public Health Service, on May 16.

HERMAN C. MENKEL, M.D.,† medical secretary, Oregon Conference of Seventh-Day Adventists, on June 30, 1957 (Unaffiliated).

DAVID B. PECK, M.D.,† president, Bowman Dairy Company, Chicago, Ill. (Food and Nutrition Section).

SEVERO P. SENEN, M.D., M.P.H.,† regional health officer, Laoag, Ilocos Norte, Philippine Islands (Health Officers Section).

CONFERENCES AND DATES

American Public Health Association, 86th Annual Meeting. St. Louis, Mo. Headquarters: Kiel Auditorium, October 27–31.

State and Regional Public Health Meetings:

Minnesota Public Health Association. St. Paul Hotel, St. Paul. September 18–19.

Nebraska Public Health Association. Castle Hotel, Omaha. September 25–26.

Pennsylvania Public Health Association. University Park, Pa. August 17–21.

Meetings of Other Organizations Coming in July, August, and September:

American Hospital Association. Chicago, Ill. August 18–21.

American Veterinary Medical Association. Philadelphia, Pa. August 18–21.

International Association for the Prevention of Blindness. Brussels, Belgium. September 8–12.

International Cancer Congress (Seventh). London, England. July 6–12.

International Congress on Diseases of the Chest. Tokyo, Japan. September 7–11.

International Congress on Home Economics (Ninth). University of Maryland, College Park, Md. July 28–August 2.

International Conference on the Peaceful Uses of Atomic Energy (Second). Geneva, Switzerland. September 1–13.

International Congress of Photofluorography. Stockholm, Sweden. August 20–23.

International Congress of Psychotherapy. Barcelona, Spain. September.

International Congress of Tropical Medicine and Malaria. Lisbon, Portugal. September 5–13.

National Association for the Prevention of Tuberculosis, Commonwealth Chest Conference. Royal Festive Hall, London, England. July 1–4.

National Conference on Public Health Training. Washington, D. C. July 28–30.

National Recreation Association. Atlantic City, N. J. September 22–26.

United States Conference on Mayors. Roosevelt Hotel, New Orleans, La. September 11–13.

World Federation of Occupational Therapists. International Congress. Copenhagen, Denmark. August 11–16.

World Federation of UN Associations. Brussels, Belgium. September.

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† Member.

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LICENSED BEVERAGE INDUSTRIES, INC., New York, N. Y., Booth 74.

THE LORVIC CORP., St. Louis, Mo., Booth 94.

DIRECTORY OF EXHIBITS (cont.)

86th Annual Meeting

St. Louis, Missouri *Kiel Auditorium* *October 27–30, 1958*

THE MACMILLAN CO., New York, N. Y., Booth 19.

MAICO ELECTRONICS INC., Minneapolis, Minn., Booth 91.

MEDICAL CASE HISTORY BUREAU, New York, N. Y., Booth 24.

MEDICAL COACHES, INC., ONEONTA, N. Y., Booth 57.

MERCK SHARP AND DOHME, DIVISION OF MERCK AND CO., INC., Philadelphia Pa., Booth 82.

THE C. V. MOSBY CO., St. Louis, Mo., Booth 77.

NATIONAL AUTOMATIC MERCHANDISING ASSN., Chicago, Ill., Booth 43.

NATIONAL DAIRY COUNCIL, Chicago, Ill., Booth 79.

NATIONAL LIVE STOCK AND MEAT BOARD, Chicago, Ill., Booth 35.

NUCLEAR-CHICAGO CORP., Chicago, Ill., Booth 68.

NURSMATIC CORP., Crystal Lake, Ill., Booth 64.

HERMIEN NUSBAUM AND ASSOCIATION, Chicago, Ill., Booth 56.

OFFICE MACHINES, INC., St. Louis, Mo., Booth 5.

OVAL WOOD DISH CORP., Tupper Lake, N. Y., Booth 90.

PARKE, DAVIS AND CO., Detroit, Mich., Booth 11.

PEPPERIDGE FARM INC., Norwalk, Conn., Booth 8.

PEPSI-COLA CO., New York, N. Y., Booths 27 and 28.

PET MILK CO., St. Louis, Mo., Booth 48.

PFIZER LABORATORIES DIVISION OF CHAS. PFIZER AND CO., INC., Brooklyn, N. Y., Booths 1, 2, 3, 4, 38, 39, 40, 41 and 42.

POWERS X-RAY PRODUCTS, INC., Glen Cove, N. Y., Booth 14.

THE PROCTER AND GAMBLE CO., Cincinnati, O., Booth 80.

PROFESSIONAL TAPE CO., INC., Riverside, Ill., Booth 9.

PUBLIC HEALTH COMMITTEE OF THE PAPER CUP AND CONTAINER INSTITUTE, New York, N. Y., Booths 44 and 45.

ROSS LABORATORIES, Columbus, O., Booth 55.

W. B. SAUNDERS CO., Philadelphia, Pa., Booth 92.

SEALRIGHT CO., INC., Fulton, N. Y., Booths 99 and 100.

THE SEVEN-UP CO., St. Louis, Mo., Booths 70 and 71.

SMITH, KLINE AND FRENCH LABS., Philadelphia, Pa., Booths 32 and 33.

SONOTONE CORP., Elmsford, N. Y., Booth 73.

E. R. SQUIBB & SONS, New York, N. Y., Booth 20.

STERWIN CHEMICALS, INC., New York, N. Y., Booth 50.

SWIFT AND CO., CANNED FOODS DEPT., Chicago, Ill., Booth 63.

TAMPAX, INC., New York, N. Y., Booth 88.

THE TECHNICON CO., INC., Chauncey, N. Y., Booth 15.

TITMUS OPTICAL CO., INC., Petersburg, Va., Booth 18.

U. S. BREWERS' FOUNDATION, INC., New York, N. Y., Booth 10.

VESTAL, INC., St. Louis., Mo., Booth 53.

WARING PRODUCTS CORP., New York, N. Y., Booth 93.

WEST CHEMICAL PRODUCTS, INC., WEST DISINFECTING DIVISION, Long Island City, N. Y., Booth 84.

WYCO INTERNATIONAL, Cleveland, O., Booth 34.

WYETH LABORATORIES, Philadelphia, Pa., Booth 72.

ZENITH RADIO CORP., HEARING AID DIVISION, Chicago, Ill., Booth 85.

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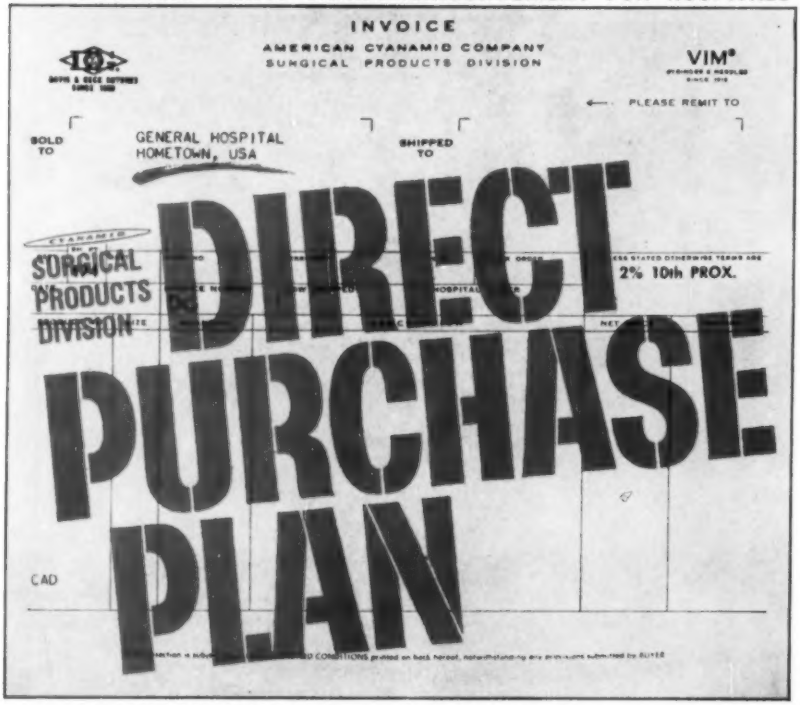

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